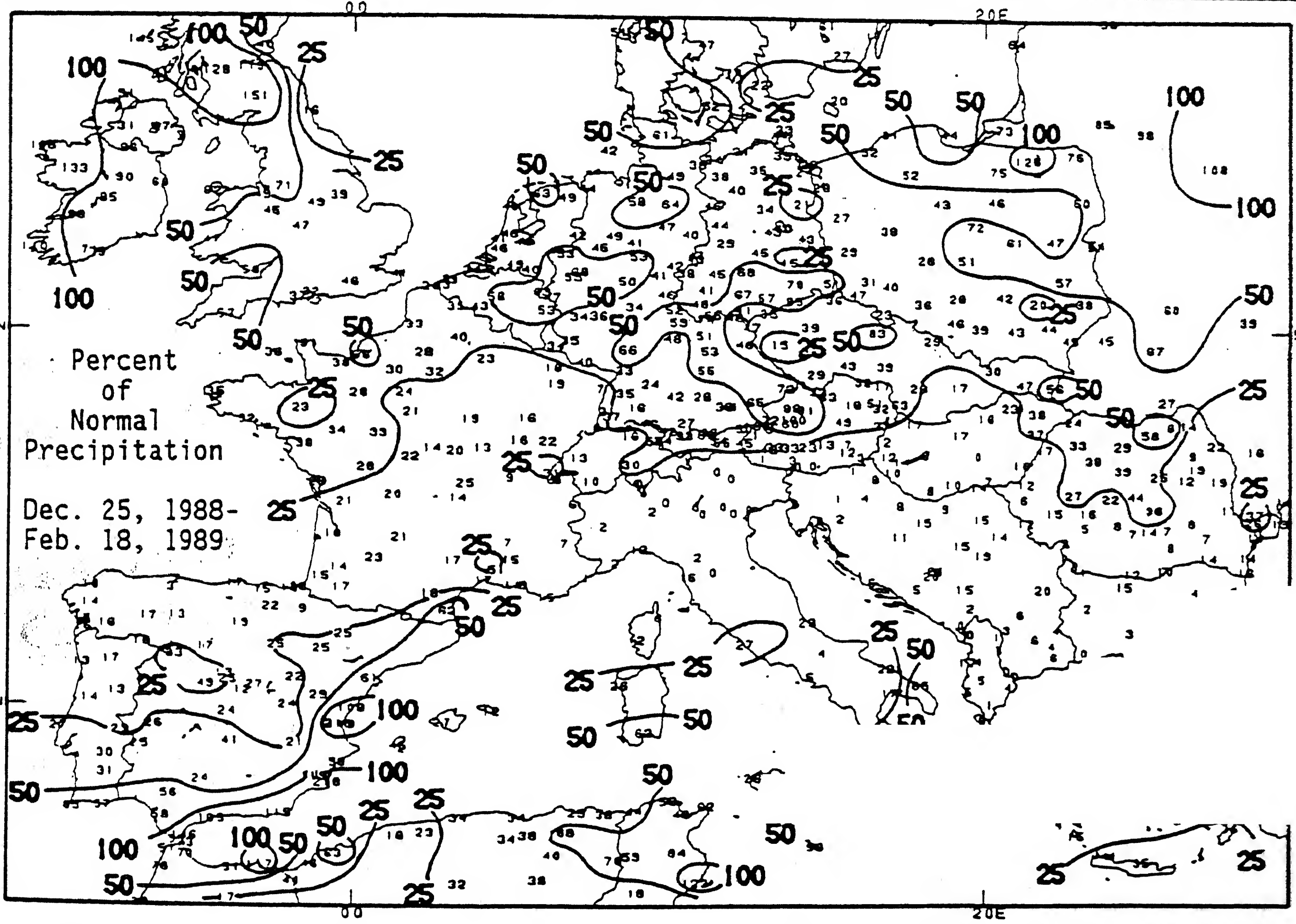
CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

No. 89/07 | Washington, DC | February 18, 1989



EXTREMELY DRY WEATHER HAS PERSISTED ACROSS SOUTHERN EUROPE SINCE DEC. 1, 1988 AND THROUGHOUT ALL OF EUROPE SINCE THE LAST WEEK OF DECEMBER. FOR ADDITIONAL INFORMATION ON THE DRYNESS IN EUROPE AND IN SOUTH AMERICA, REFER TO THE SPECIAL CLIMATE SUMMARIES.

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

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is Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, con-se format, current surface climatic conditions in the United States and around the world. The Bulletin ntains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

ost analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center a the Global Telecommunication System. Similar analyses based on final, checked data are likely to dif-r to some extent from those presented here.

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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF FEBRUARY 18, 1989

[Approximate duration of anomalies is in brackets]

1. Northwestern United States and Southwestern Canada:

RAINS PROVIDE SOME RELIEF.

As much as 51.8 mm (2.04 inches) of precipitation fell in parts of Oregon and Washington; however, many other areas had little or no precipitation as dryness continued [6 weeks].

2. Southeastern United States:

AREA STILL DRY.

Little or no precipitation fell in the southeastern United States as dry weather persisted [6 weeks].

3. Central and Eastern United States:

HEAVY RAIN, SNOW REPORTED,

Torrential rains, up to 299.7 mm (11.80 inches) in Kentucky, caused flooding,while to the east, heavy snow, in excess of 30.5 cm (one foot), fell in eastern Virginia and southern Maryland (see U.S. Weekly Climate Highlights) [Episodic Event].

4. Uruguay and Northern Argentina:

AREA REMAINS DRY AND WARM.

Less than 17.0 mm (0.67 inches) of precipitation fell as dryness persisted [34 weeks]. Unusually warm conditions continued with temperatures up to 5.1°C (9.2°F) above normal (see Special Climate Summary) [12 weeks].

5. Europe and the Middle East:

DRY WEATHER PERSISTS; MILD IN NORTH.

Little or no precipitation fell across Europe and the Middle East as dryness remained (see Special Climate Summary) [11 weeks]. Unusually mild weather prevailed over the northern half of the Continent with temperatures up to 9.2°C (16.6°F) above normal [6 weeks].

6. Jordan and Lebanon:

ANOTHER SNOW STORM.

Snowfall approaching 100 cm (3.3 feet) occurred in many parts of Jordan and Lebanon as the second major snowstorm of the season struck the area [Episodic Event].

7. Siberia:

MILD CONDITIONS PREVAIL.

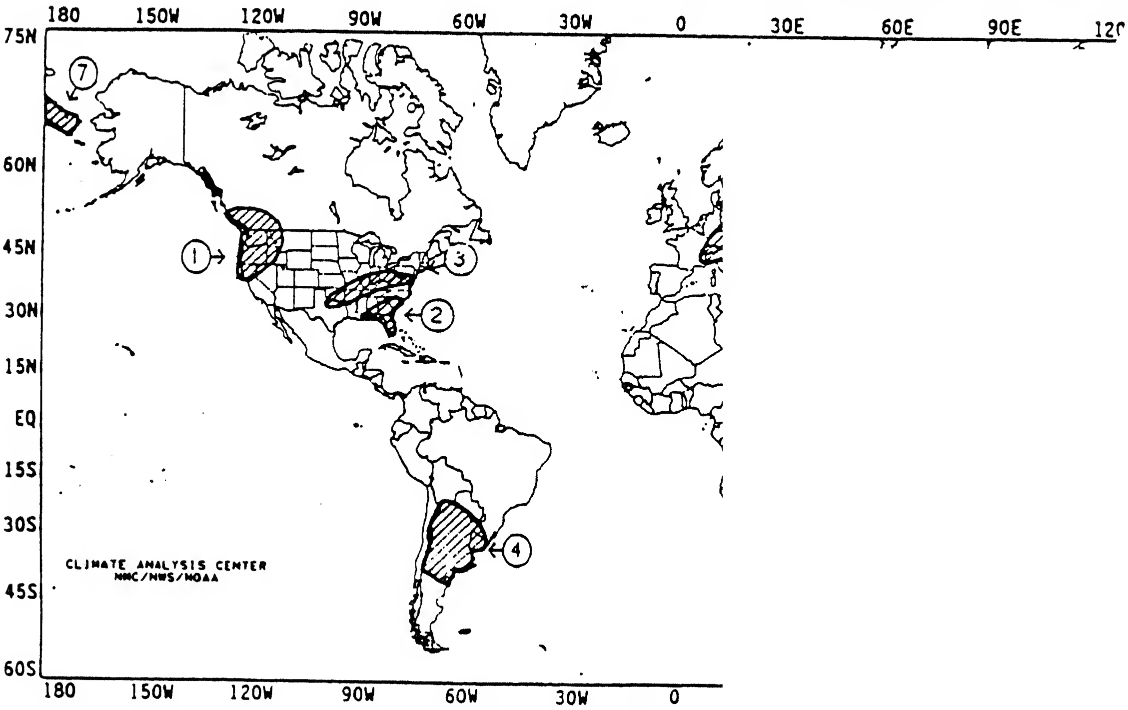
The mild weather regime, with temperatures reaching 20.0°C (36.0°F) above normal, persisted across most of Siberia [19 weeks].

8. Indonesia:

VERY HEAVY SHOWERS REPORTED.

Heavy thunderstorms dropped as much as 200.0 mm (7.87 inches) of rain on the island of Java resulting in some flooding [Episodic Event].

(NOTE: Text precipitation amounts and temperature departures are this week's values).



Approximate locations of the major anomalies a
this map. See other maps in this Bulletin for (
four week precipitation anomalies, longer term

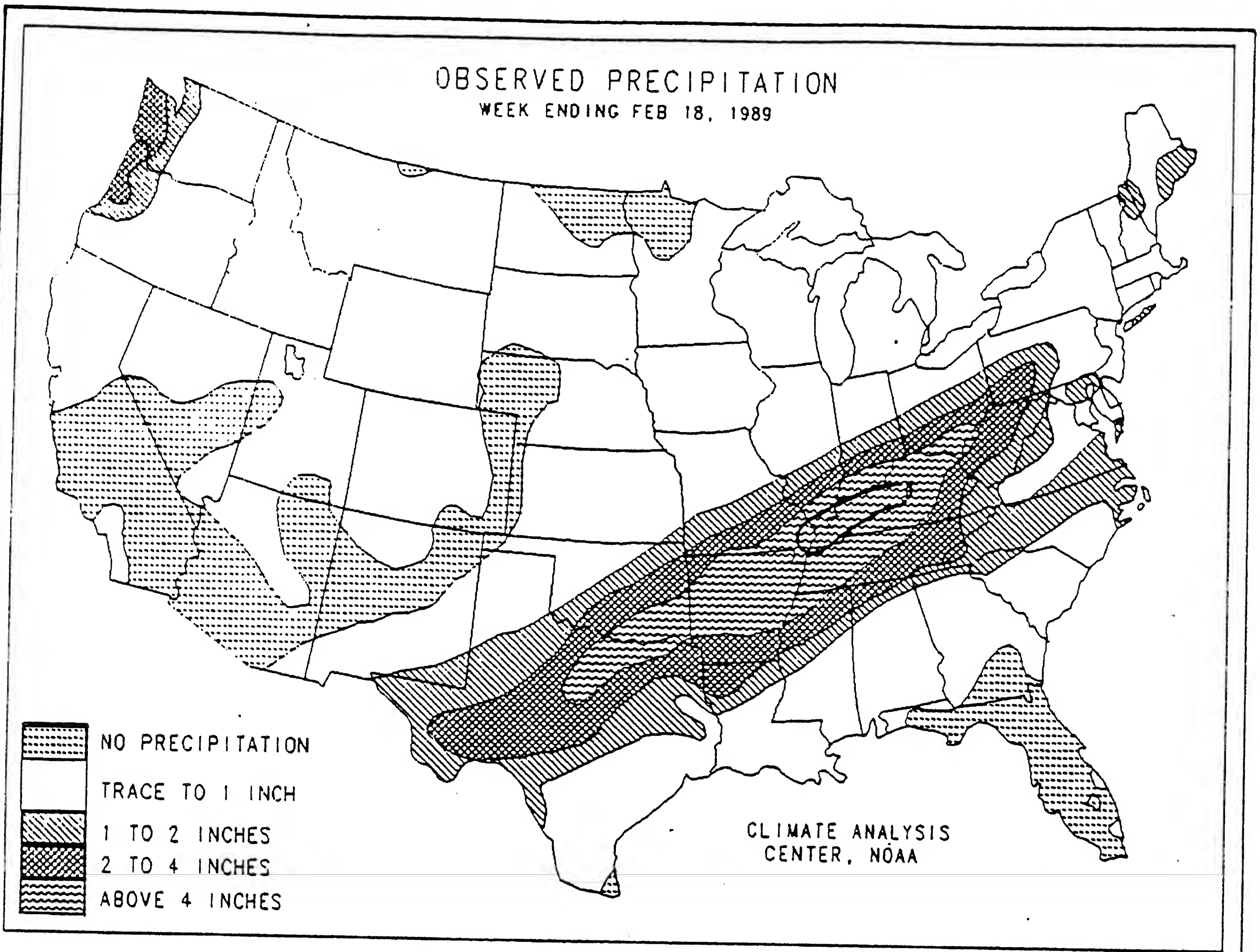
UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF FEBRUARY 12 THROUGH FEBRUARY 18, 1989.

Sharply contrasting temperatures occurred across e nation as bitterly cold air prevailed in the northern irds of the Rockies and Great Plains while seasonably warm weather was recorded in the utheast. A series of low pressure centers developed ong a slow moving cold front, producing light to oderate snowfall in parts of the Midwest and torrential ins throughout most of the Tennessee and lower hio Valleys. Towards the end of the week, colder d drier conditions returned to the Tennessee and hio Valleys as the cold front pushed southeastward. eanwhile, a low pressure center developed off the outh Carolina coast and dumped a wintry mixture sleet and freezing rain on central North Carolina d northern Georgia and heavy snows (up to 18 ches) on northern North Carolina and southern rginia. Farther west, a weak Pacific storm system nt a surge of moisture across the Pacific Northwest moderate to heavy rains fell on coastal sections Washington and Oregon and moderate to heavy nows (9 inches at Spokane, WA) blanketed the ascades and eastern Washington. On Thursday, cord high pressures were established at Chicago, (30.97"), Duluth, MN (31.08"), Milwaukee, WI 1.00"), Rockford, IL (30.98"), and South Bend, IN 0.94") in response to a strong dome of high pressure cated over the upper Midwest. At the week's end, new storm system was rapidly intensifying in the outhern Great Plains and moving eastward towards e already saturated Tennessee and Ohio Valleys.

Several days of heavy rainfall created severe ooding in portions of the Tennessee and lower Ohio alleys. According to the River Forecast Centers, up 11.8 inches of rain inundated west-central Kentucky, roducing floodwaters that temporarily converted everal communities into virtual islands (see Figure). In addition, heavy showers and thunderstorms umped between 2 and 4 inches of precipitation from outhwestern Texas northeastward to western ennsylvania, while northeastern Arkansas, western ennessee, the Missouri Bootheel, and most of entucky received more than 6 inches of rain (see able 1). Elsewhere, southern Virginia and the northern half of North Carolina measured moderate to heavy precipitation, mainly in the form of snow. Farther west, variable amounts of precipitation were observed in the Pacific Northwest as up to 4.2 inches was reported along the Washington coast. Light to moderate totals occurred along the northern half of the Pacific Coast, in the northern Intermountain West, the northern half of the Rockies, across most of the Great Plains, and throughout the country east of the Mississippi River with the exception of the Gulf Coast and Florida. Little or no precipitation fell on the Southwest and Great Basin, the central and southern Rockies, on most of the northern Great Plains and upper Midwest, and along the Gulf and south Atlantic Coasts. Relatively dry weather covered most of Hawaii and Alaska.

Bitterly cold Arctic air over the western and northern U.S. brought subzero readings to parts of the Great Basin, northern and central Rockies, northern Great Plains, upper Midwest, and extreme northern New England (see Figure 2). Temperatures plunged to -37°F at Hibbing, MN on Feb. 16. For the second consecutive week, subfreezing readings were recorded in the valleys of central California, while farther east, Tallahassee, FL dipped to 28°F on Feb. 12. Weekly temperatures averaged well below normal throughout the western, central, and northern U.S. The greatest negative temperature departures (between -15° and -21°F) were located in the northern and central Rockies (see Table 2). In sharp contrast, unseasonably mild conditions prevailed across the nation east of the Mississippi River, especially along the central Gulf Coast northward to Tennessee as temperatures averaged up to 12°F above normal (see Table 3). During the week, highs in the eighties extended as far north as central Virginia (see Figure 3) as dozens of stations in the area tied or set new daily maximum temperature records. In Alaska, a dramatic change from the bitterly frigid weather that existed during the latter half of January in the northern and western parts of the state continued for the second straight week as temperatures averaged up to 38°F above normal (see Table 3).


OBSERVED PRECIPITATION
WEEK ENDING FEB 18, 1989
NO PRECIPITATION
TRACE TO 1 INCH
1 TO 2 INCHES
2 TO 4 INCHES
ABOVE 4 INCHES
CLIMATE ANALYSIS
CENTER, NOAA

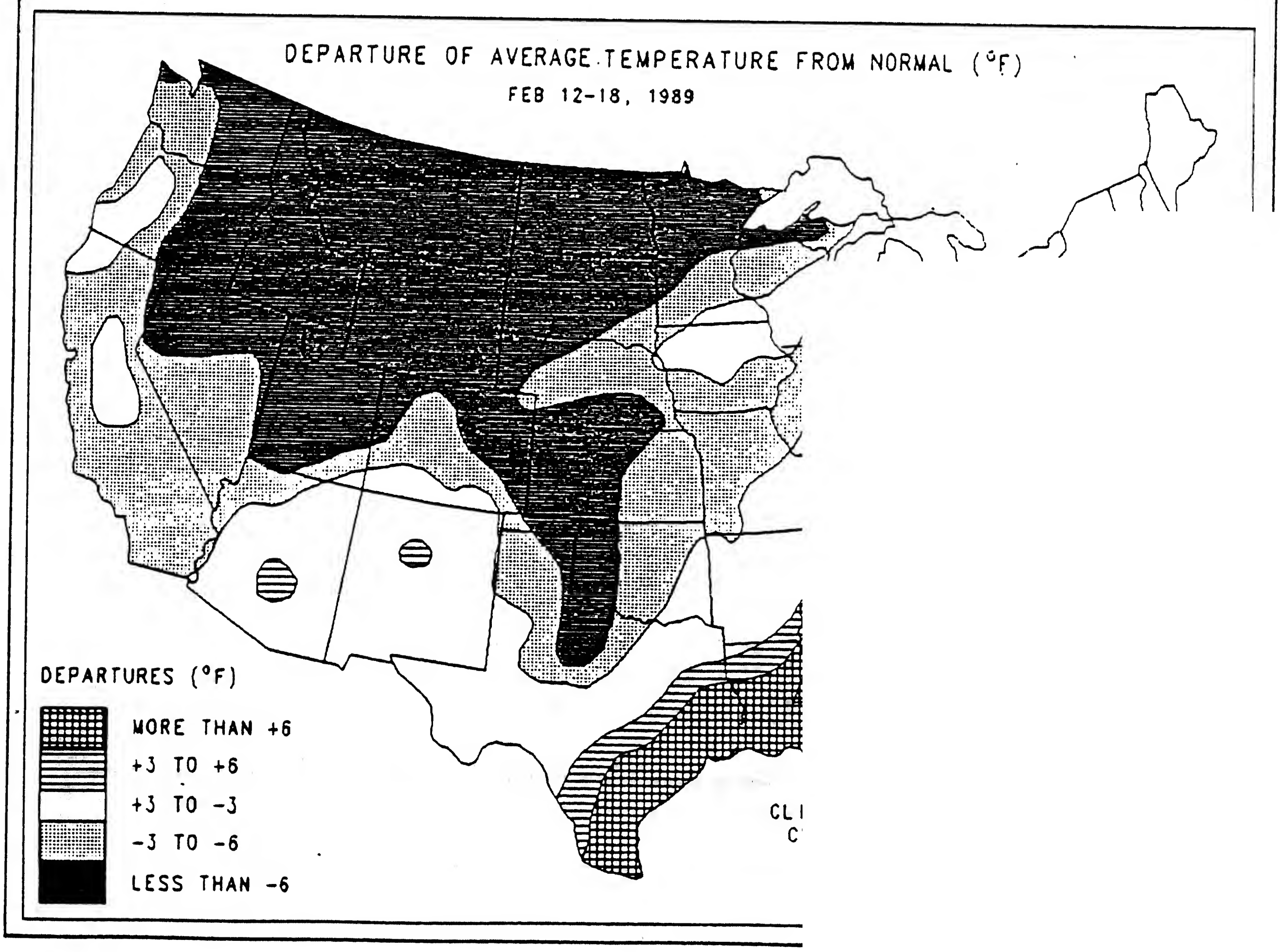

DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)
FEB 12-18, 1989
DEPARTURES (°F)
MORE THAN +6
+3 TO +6
+3 TO -3
-3 TO -6
LESS THAN -6

TABLE 1. Selected stations with three or more inches of precipitation for the week.

Station	Amount(In)	Station	Amount(In)
Paducah, KY	9.52	Evansville, IN	4.06
Lexington, KY	7.14	Fort Worth/Carswell AFB, TX	3.85
Jonesboro, AR	6.60	McAlester, OK	3.81
Bowling Green, KY	6.38	Astoria, OR	3.72
Jackson, TN	6.25	Fort Worth/Meacham AFB, TX	3.52
Nashville, TN	6.15	Wichita Falls, TX	3.44
Memphis, TN	6.04	Muscle Shoals, AL	3.40
Memphis NAS, TN	5.96	Blytheville AFB, AR	3.37
Louisville, KY	5.65	Charleston, WV	3.35
Huntington, WV	5.46	Shreveport/Barksdale AFB, LA	3.34
Hopkinsville/Campbell AAF, TN	5.07	Shreveport, LA	3.26
Little Rock AFB, AR	4.98	Abilene/Dyess AFB, TX	3.23
Cape Girardeau, MO	4.88	Dallas/Fort Worth, TX	3.21
Little Rock, AR	4.75	Jackson, KY	3.12
Harrison, AR	4.51	Abilene, TX	3.00
Fort Smith, AR	4.06		

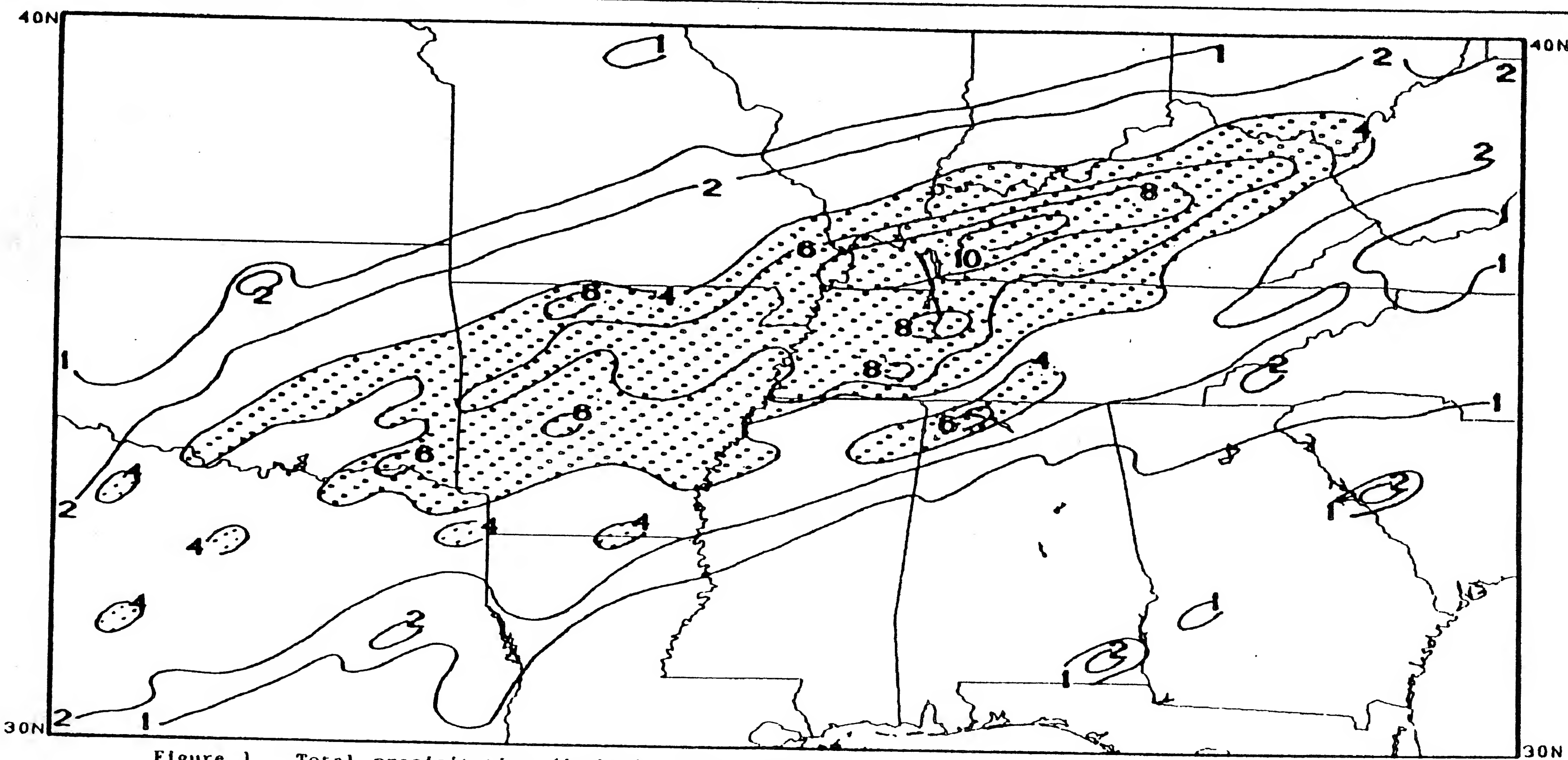


Figure 1. Total precipitation (inches) during the week of Feb. 12-18, 1989 incorporating first-order and airway stations from NMC and cooperative stations from the River Forecast Centers. Isopleths are drawn only for 1, 2, 4, 6, 8, and 10 inches, and stippled areas measured more than 4 inches of precipitation. Up to 11.8 inches of rain fell on west-central Kentucky as many locations in the Tennessee and lower Ohio Valleys experienced severe flooding.

TABLE 2. Selected stations with temperatures averaging 9.0°F or more BELOW normal for the week.

Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
Great Falls, MT	-20.8	6.7	Rock Springs/Sweetwater, WY	-11.3	13.3
Cut Bank, MT	-18.3	4.5	Kalispell, MT	-11.1	15.7
Helena, MT	-18.3	8.2	Cedar City, UT	-11.1	23.3
Havre, MT	-17.9	3.1	Rapid City, SD	-10.9	15.5
Lander, WY	-17.6	8.5	Salt Lake City, UT	-10.7	23.6
Billings, MT	-16.3	12.6	Grand Forks, ND	-10.5	-1.2
Miles City, MT	-16.2	6.1	Butte, MT	-10.4	11.4
Williston, ND	-16.0	-0.6	Spokane, WA	-10.4	22.2
Glasgow, MT	-14.4	1.2	Pocatello, ID	-10.2	19.6
Casper, WY	-14.4	12.9	Missoula, MT	- 9.9	18.7
Sheridan, WY	-14.3	12.4	Worland, WY	- 9.7	11.9
Minot, ND	-13.4	0.4	Cheyenne, WY	- 9.6	20.0
Delta, UT	-13.4	18.1	International Falls, MN	- 9.5	-1.9
Burns, OR	-12.6	21.2	Boise, ID	- 9.3	27.0
Bozeman, MT	-12.5	9.6	Pierre, SD	- 9.1	12.6
Dickinson, ND	-12.3	5.7			

TABLE 3. Selected stations with temperatures averaging 9.0°F or more ABOVE normal for the week.

Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
Barrow, AK	+37.6	17.7	Jackson, MS	+11.5	60.4
Kotzebue, AK	+27.7	22.9	Iliamna, AK	+11.5	29.1
Aniak, AK	+25.4	31.8	New Orleans/Moisant, LA	+11.1	65.6
Nome, AK	+25.4	28.7	Atlanta, GA	+10.8	55.6
Bethel, AK	+23.5	29.5	Baton Rouge, LA	+10.5	64.1
Bettles, AK	+22.3	17.1	Mobile, AL	+10.4	64.0
King Salmon, AK	+17.8	32.4	Tuscaloosa, AL	+10.0	57.4
McGrath, AK	+17.2	15.4	Valparaiso/Eglin AFB, FL	+ 9.8	62.9
Fairbanks, AK	+16.1	12.3	Cape Hatteras, NC	+ 9.8	55.3
Big Delta, AK	+14.6	17.1	Cold Bay, AK	+ 9.6	37.0
St. Paul Island, AK	+14.1	36.1	Lake Charles, LA	+ 9.3	62.4
Northway, AK	+12.5	3.3	Athens, GA	+ 9.1	54.1
Meridian, MS	+12.1	61.0			

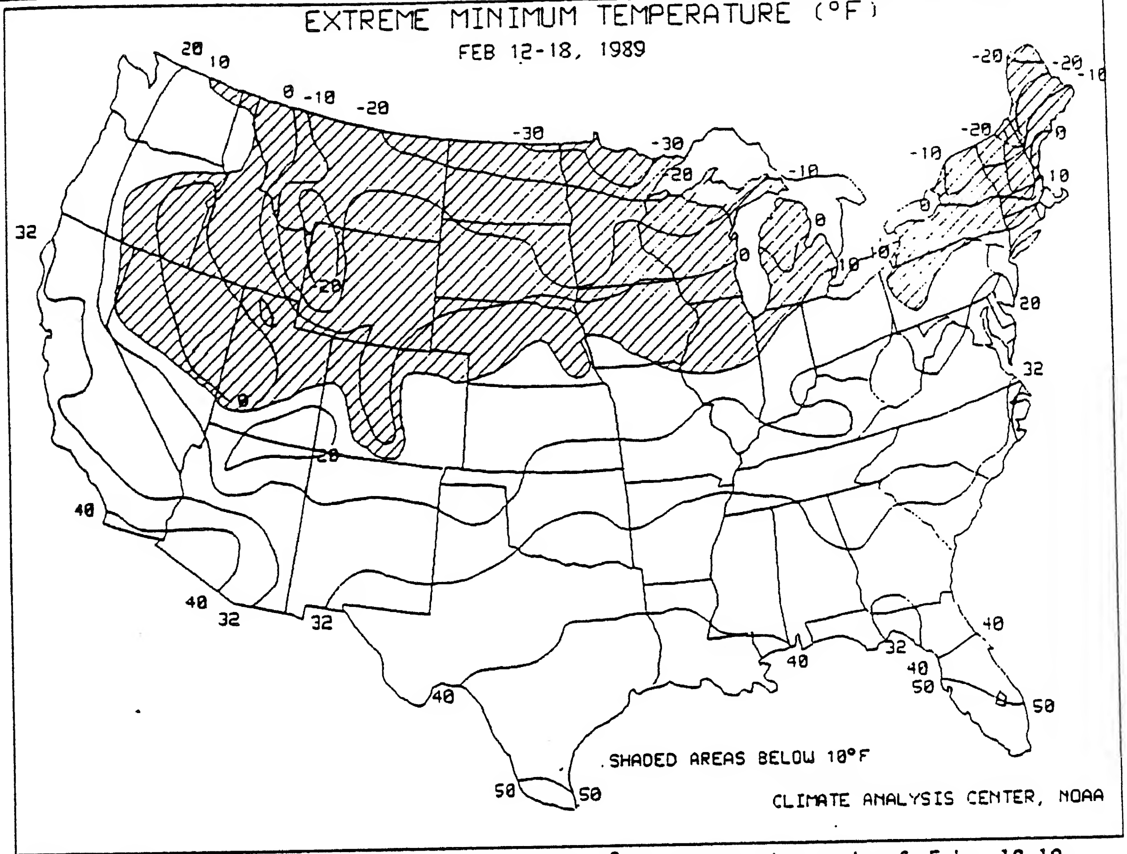
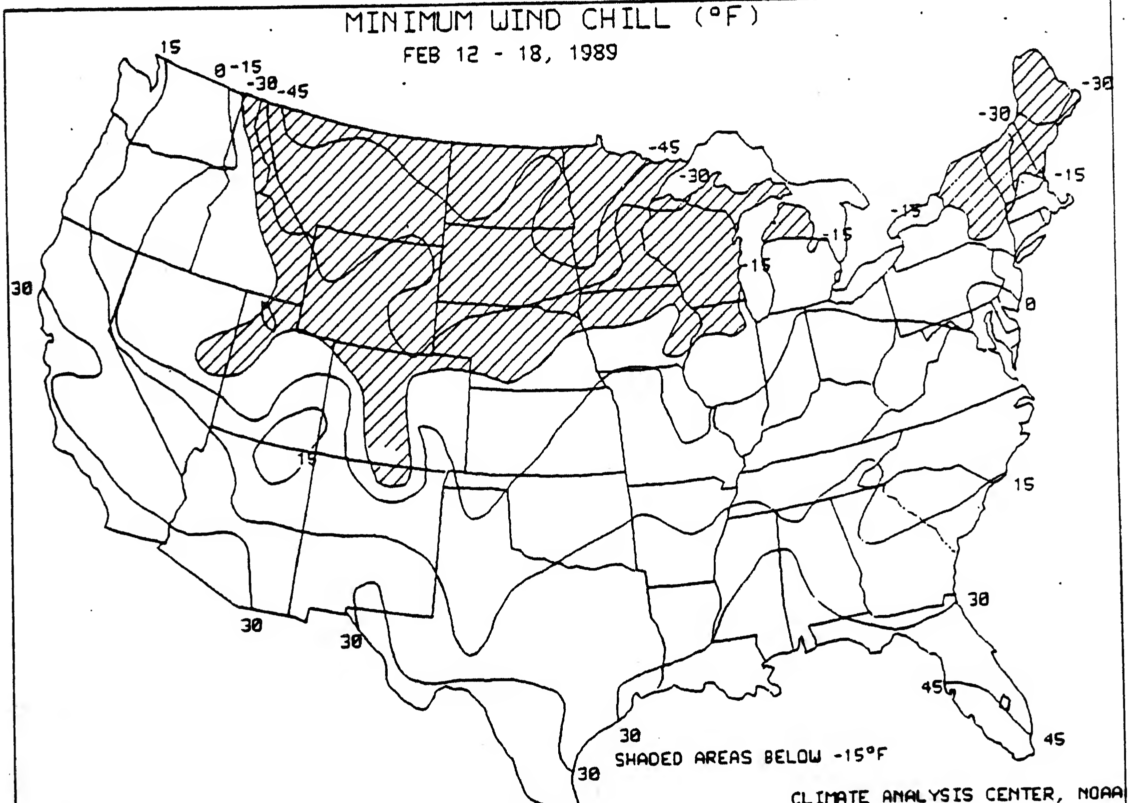


Figure 2. Extreme minimum temperatures (°F) during the week of Feb. 12-18, 1989. Bitterly cold weather swept across the northern Rockies, northern Great Plains, upper Midwest, and northern New England with subzero readings. Lows dipped below 32°F in the valleys of central California and in northern Florida.



Dangerous wind chills (less than -30°F) were confined to the northern Rockies, northern Great Plains, upper Midwest, and northern New England with the presence of subzero temperatures and gusty winds.

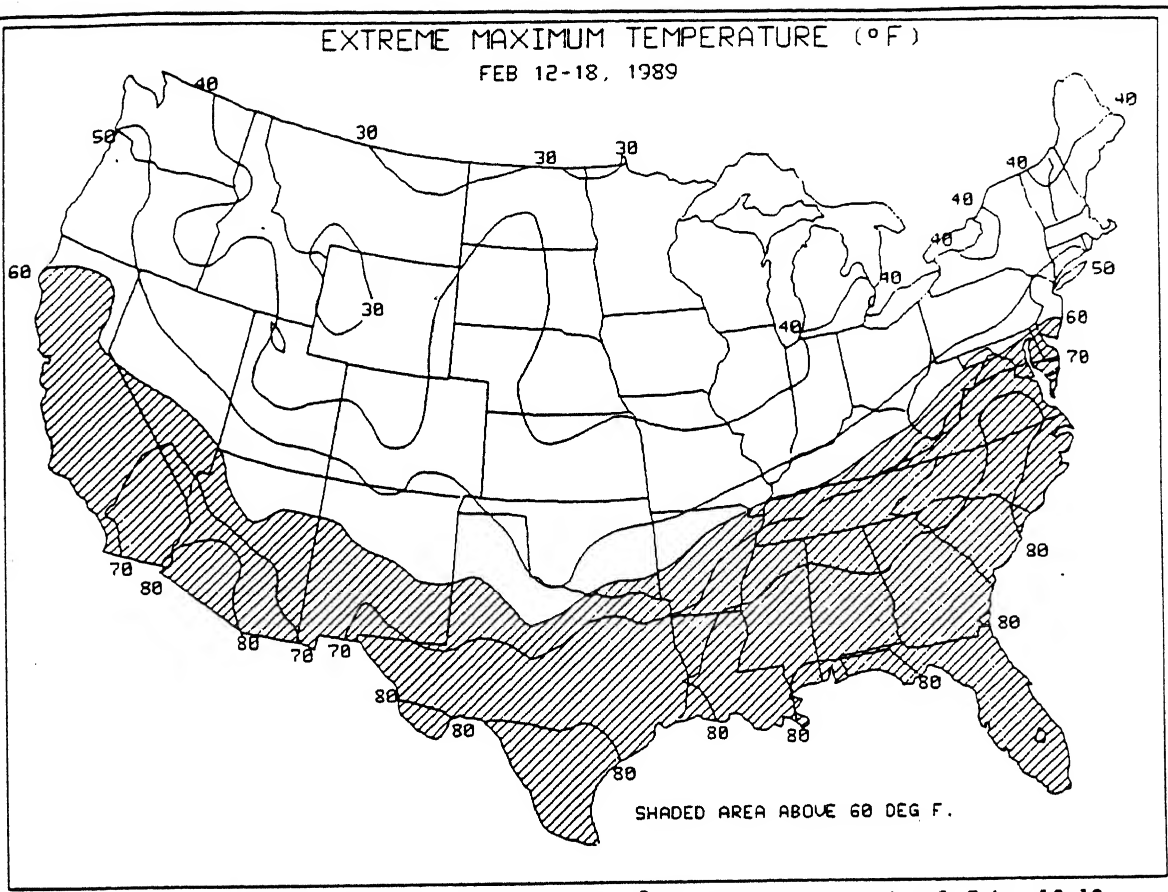
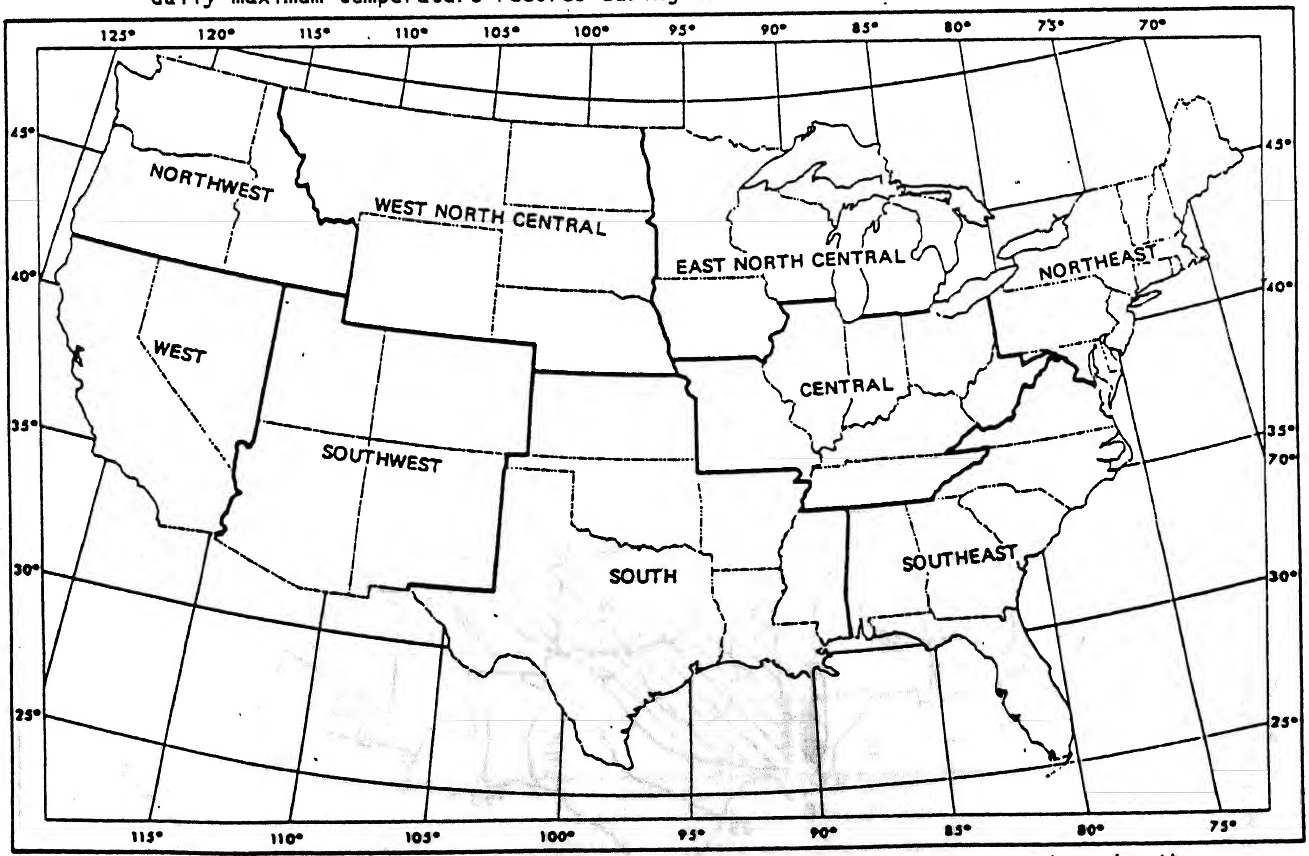
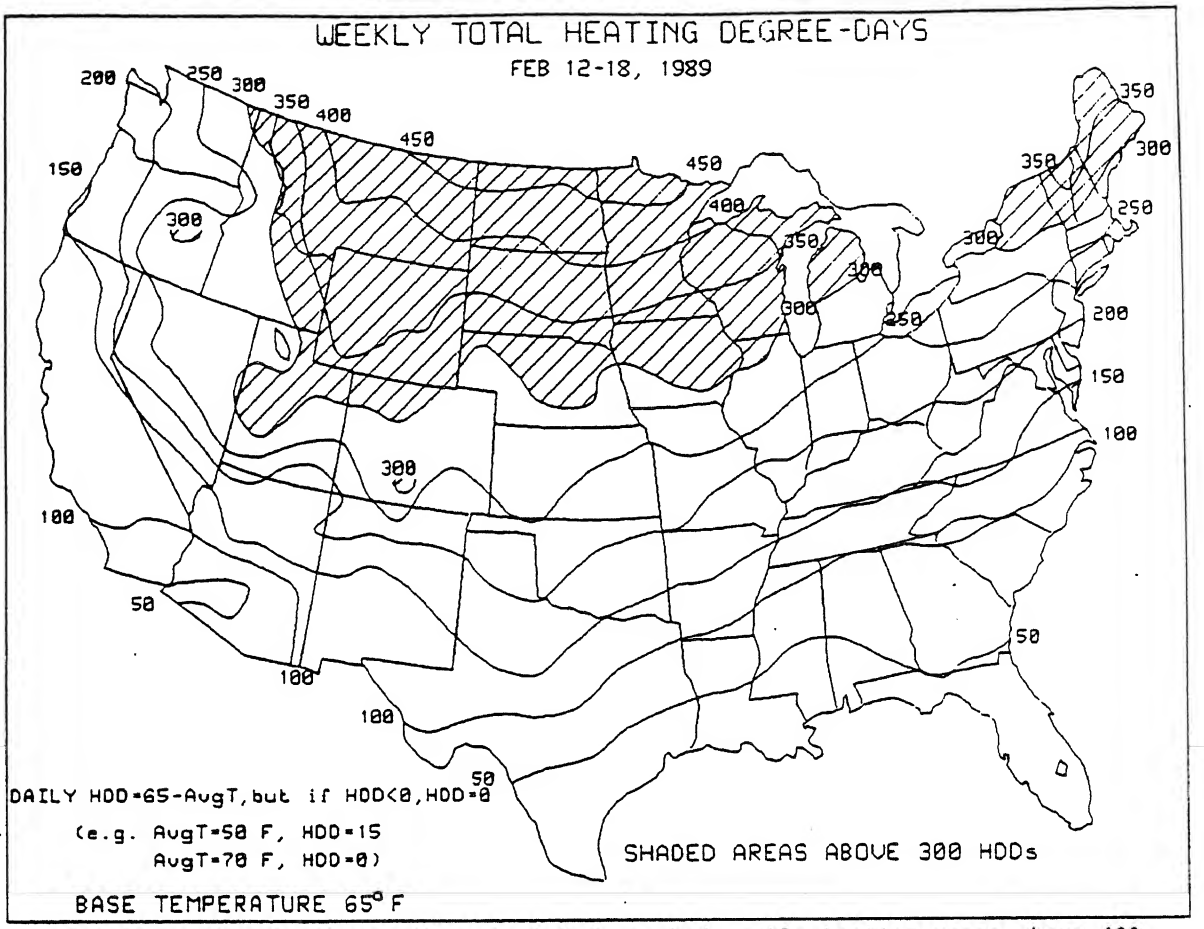


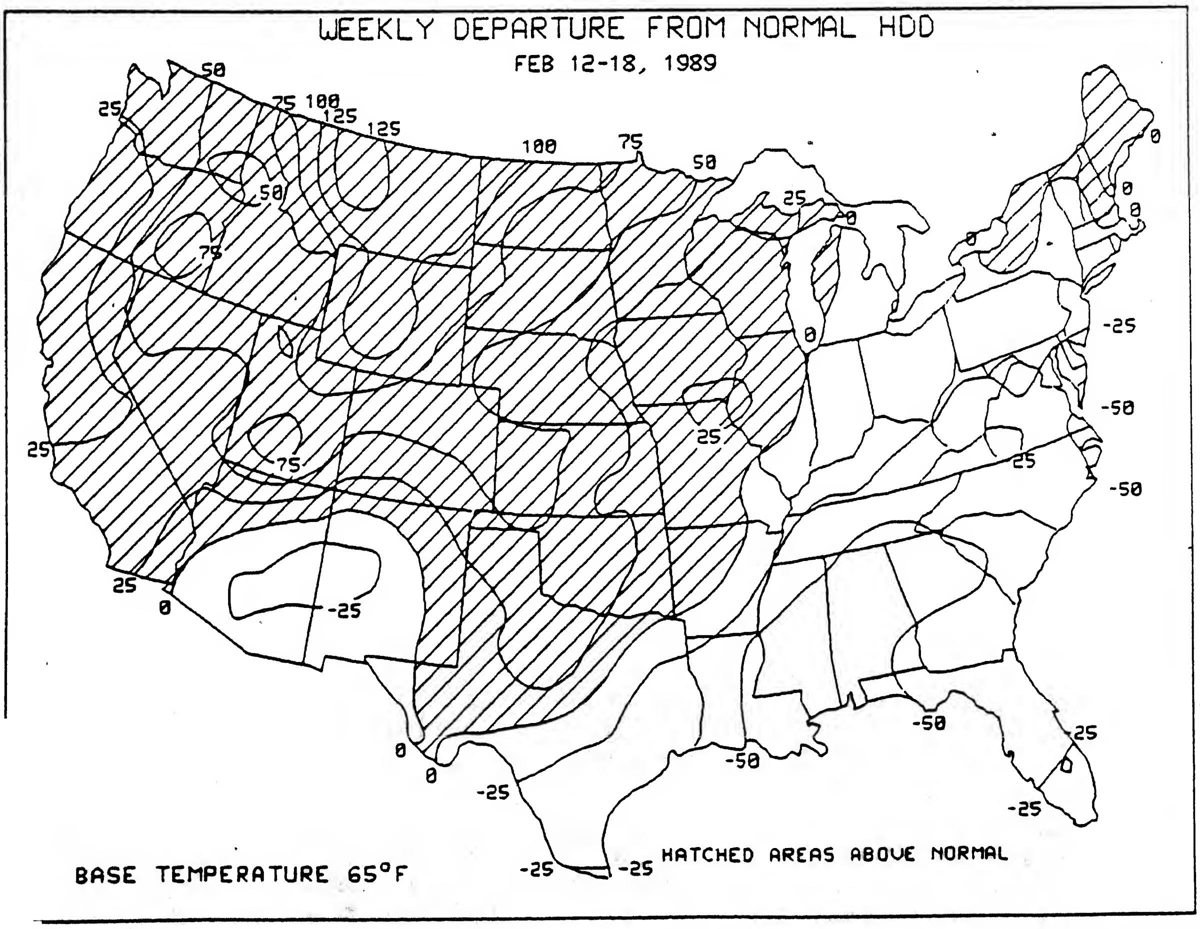
Figure 3. Extreme maximum temperatures (°F) during the week of Feb. 12-18, 1989. Abnormal warmth prevailed in the Southeast as highs in the eighties extended as far north as central Virginia and dozens of stations tied or broke daily maximum temperature records during the week.



Breakdown of the contiguous United States into regional state groupings by the NOAA's National Climatic Data Center (NCDC). Historical graphics for monthly, seasonal, and annual comparisons are based upon these regions as depicted in the Weekly Climate Bulletin U.S. January 1989 climate review (WCB #89/05 dated Feb. 4, page 20).

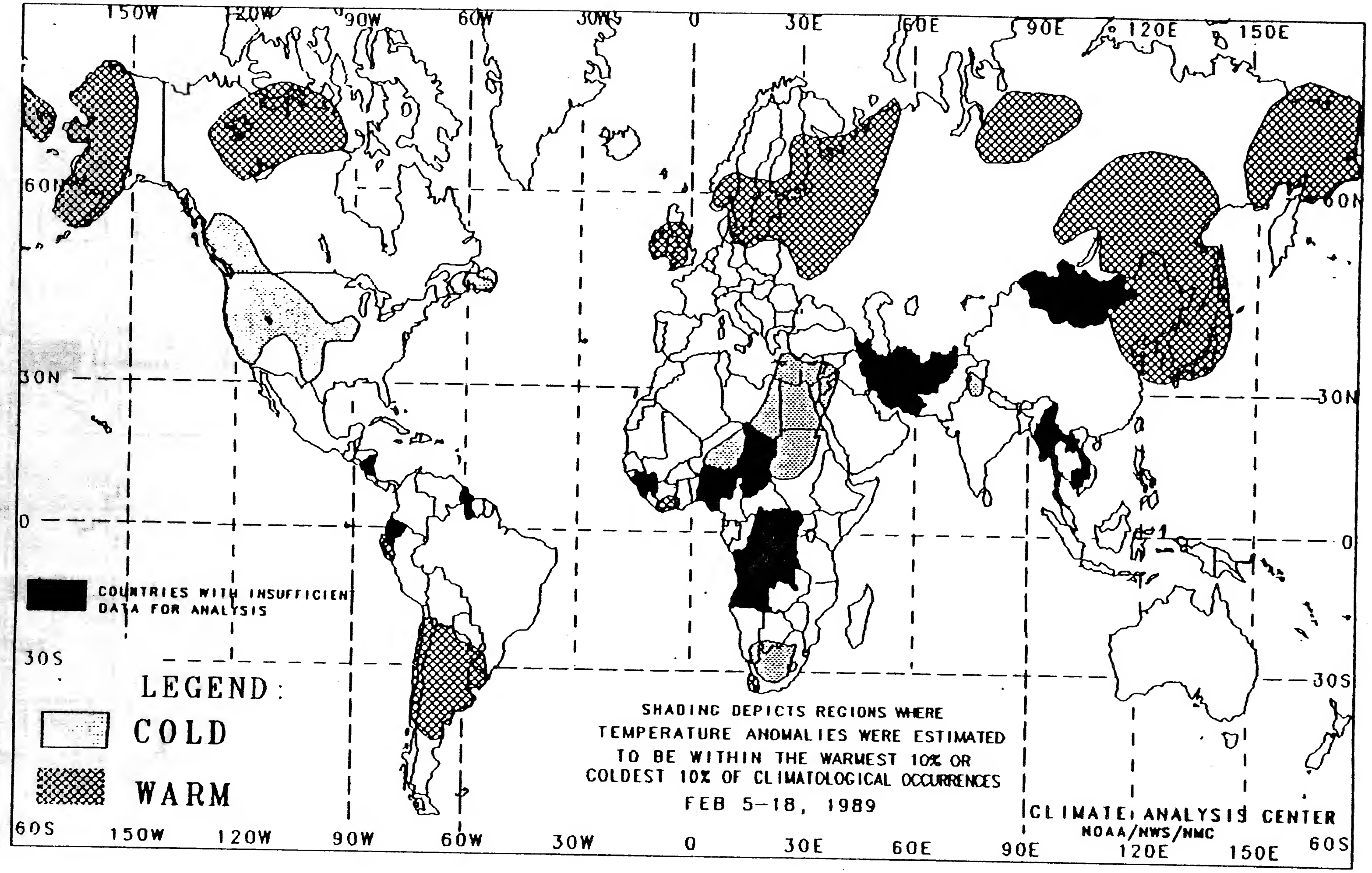


Frigid weather in the north-central U.S. pushed weekly heating usage above 400 HDDs (top). Subnormal temperatures in the western, central, and northern U.S. required excess heating while unseasonably warm conditions in the Southeast greatly lowered the normal weekly heating demand (bottom).



GLOBAL TEMPERATURE ANOMALIES

2 Weeks



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

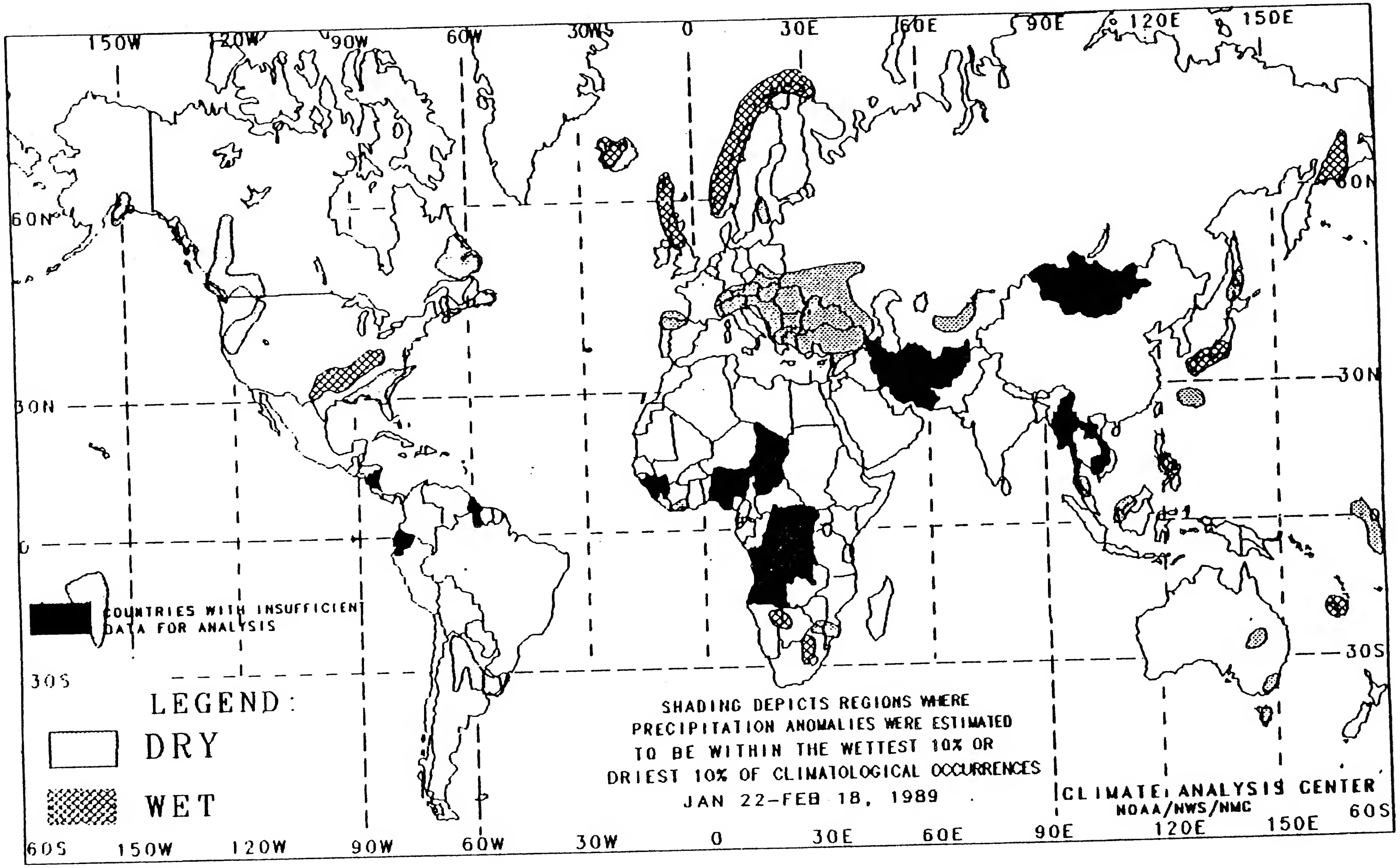
Temperature anomalies are not depicted unless the magnitude of

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining precentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution

GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

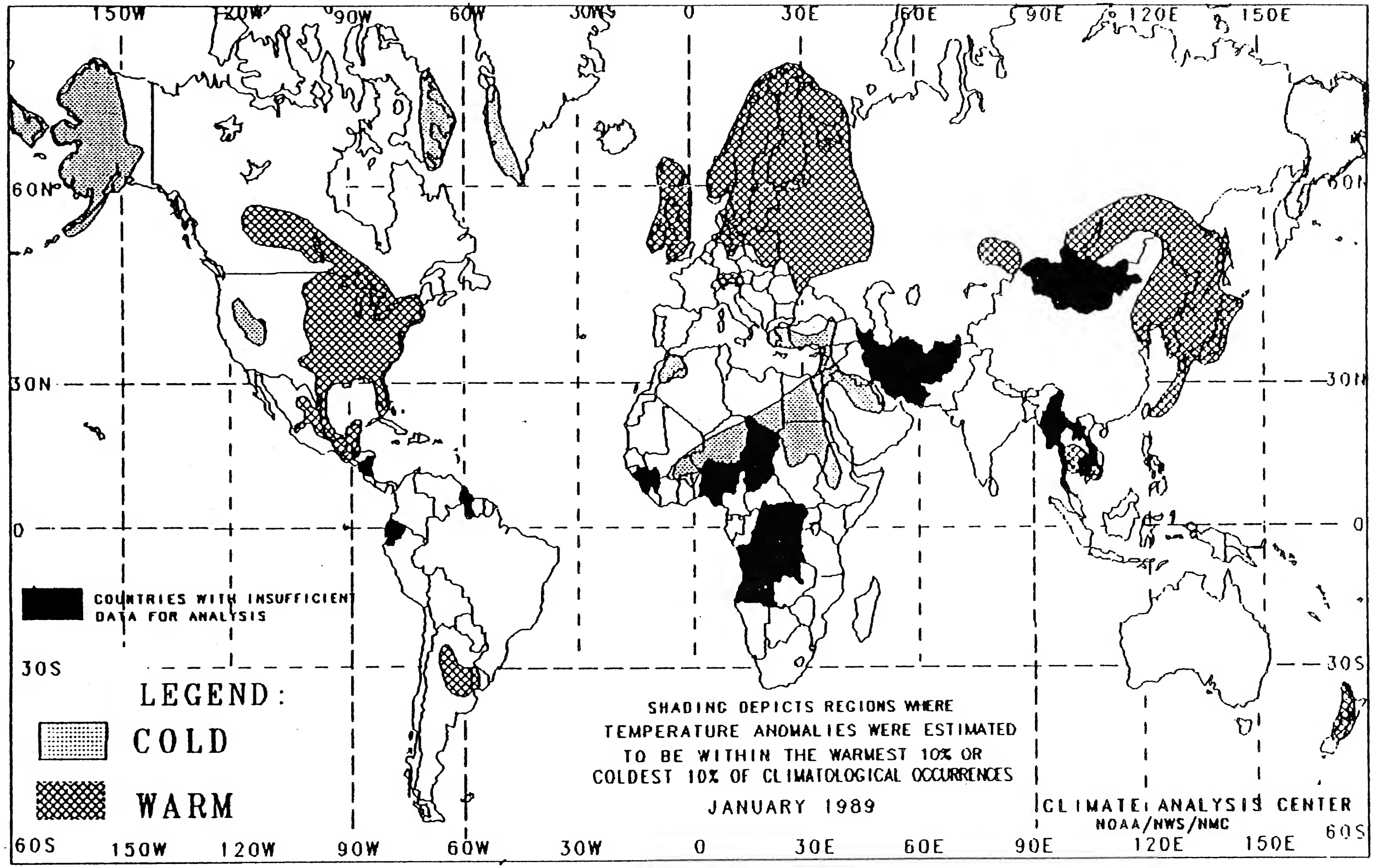
In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL TEMPERATURE ANOMALIES

1 Month



The anomalies on this chart are based on approximately 2500 observing stations for which at least 26 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining precentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

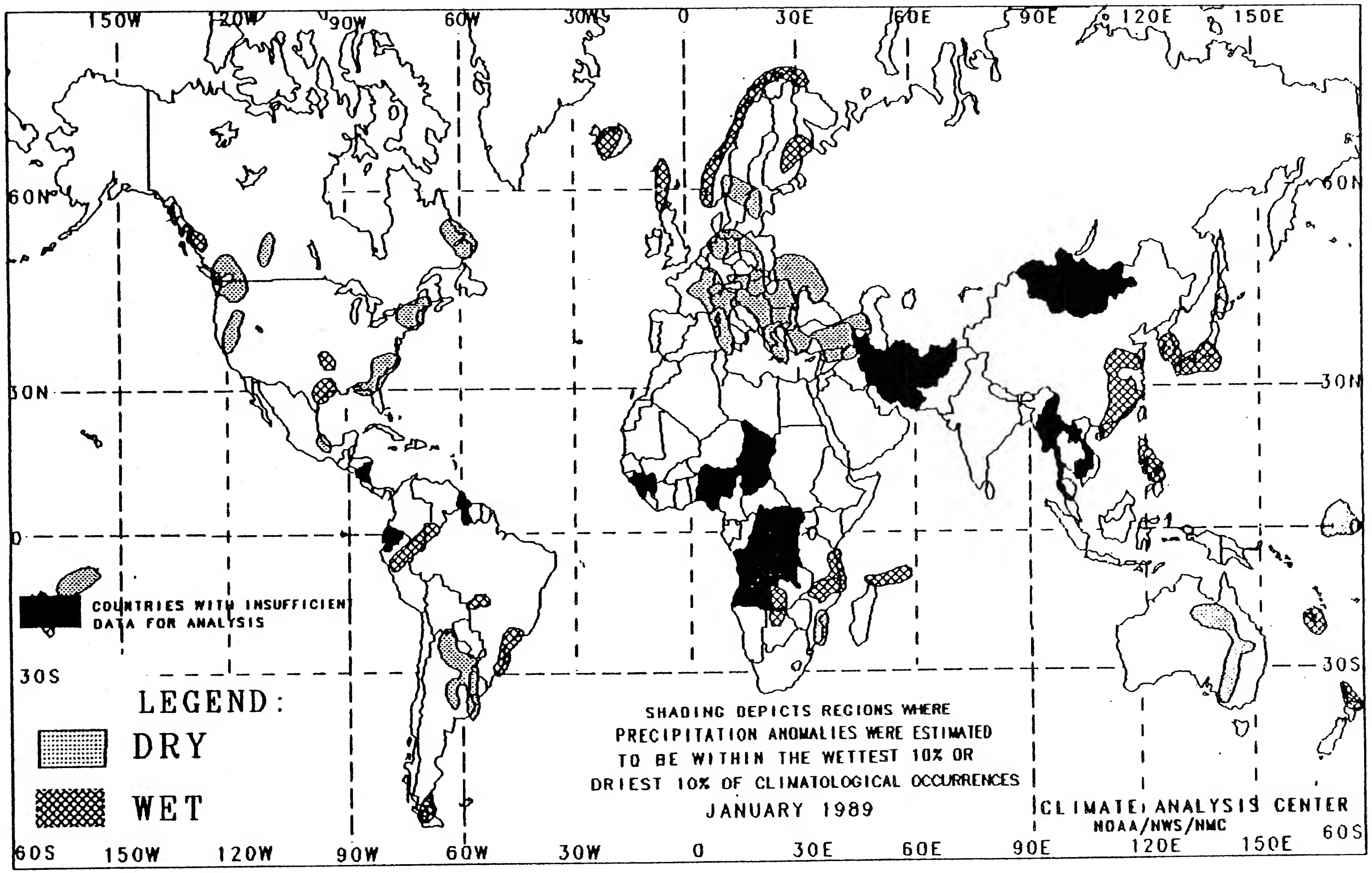
The chart shows general areas of one month temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

PRINCIPAL TEMPERATURE ANOMALIES - JANUARY 1989

REGIONS AFFECTED	TEMPERATURE AVERAGE (C)	DEPART. FM NORMAL (C)	COMMENTS
Alaska	-32 to -5	-3 to -11	Very cold second half of January
Eastern Baffin Island	-33 to -28	-5 to -7	COLD - 5 to 10 weeks
Western Greenland	-19 to -11	-4 to -6	COLD - 5 to 6 weeks
Western United States	-11 to -6	-4 to -7	COLD - 4 to 10 weeks
Southern Canada, Eastern United States, and Eastern Mexico	-18 to +28	+2 to +8	MILD - 2 to 10 weeks
Uruguay and Argentina	+22 to +29	+2 to +5	WARM - 2 to 14 weeks
British Isles and Faroe Islands	+5 to +8	+2 to +4	MILD - 5 to 13 weeks
Northeastern Europe	-9 to +6	+2 to +9	MILD - 2 to 13 weeks
Switzerland and Austria	-2 to +1	+2 to +7	MILD - 7 to 10 weeks
Morocco and Algeria	+5 to +13	-2 to -3	COOL - 9 weeks
Middle East and Northern Africa	-9 to +26	-2 to -5	Very cold first half of January
Kazakh S.S.R.	-11 to -7	+4 to +7	MILD - 8 to 14 weeks
Japan, Korea, Northeastern China, and Southeastern Siberia	-31 to +20	+2 to +10	MILD - 4 to 22 weeks
Extreme Eastern Siberia	-42 to -20	-5 to -15	COLD - 2 to 4 weeks
Thailand and Vietnam	+26 to +28	+2 to +3	Very warm first half of January
New Zealand	+18 to +20	+2 to +3	WARM - 7 weeks

GLOBAL PRECIPITATION ANOMALIES

1 Month



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the one month period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total one month precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

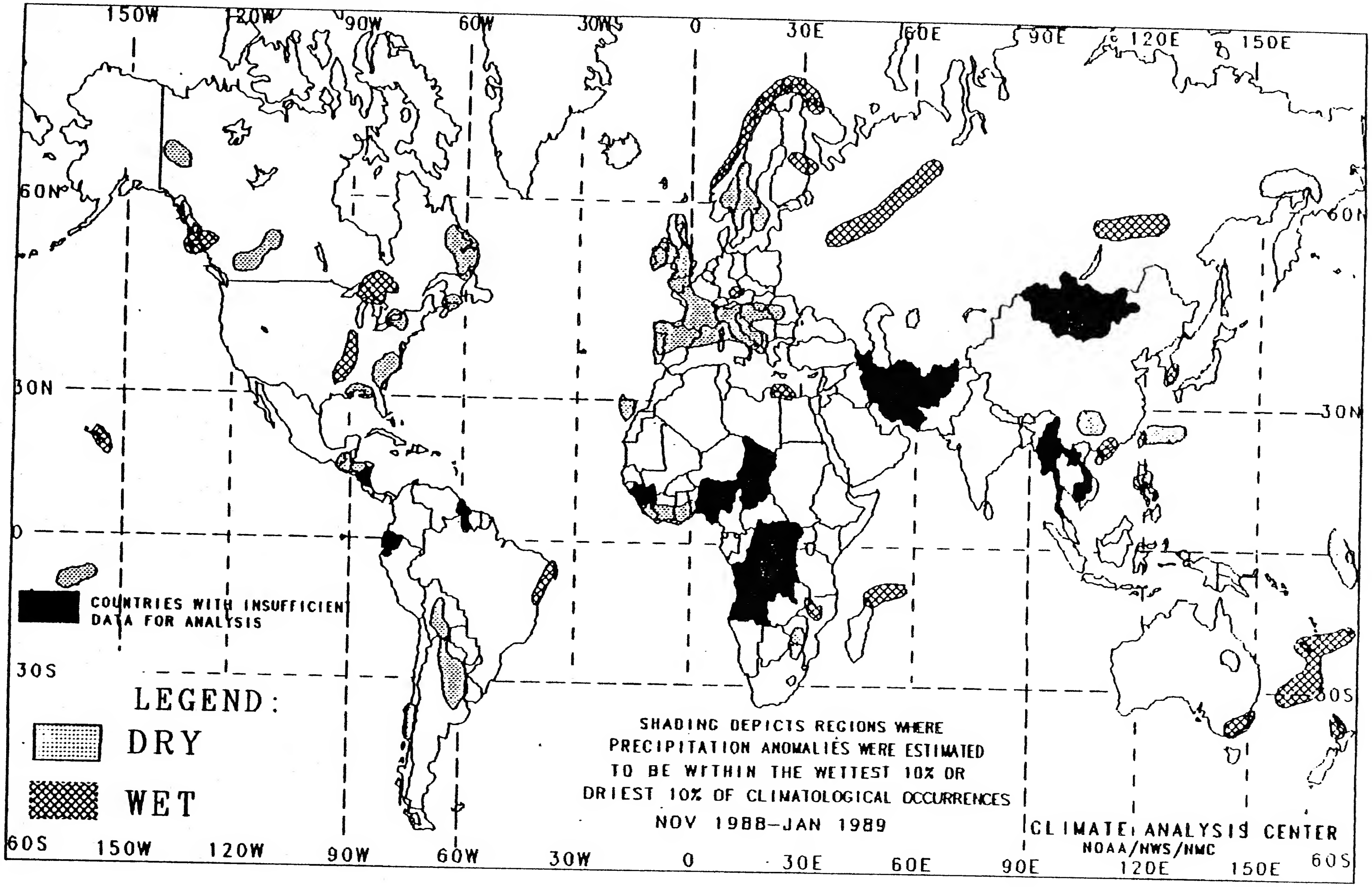
The chart shows general areas of one month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

PRINCIPAL PRECIPITATION ANOMALIES - JANUARY 1988

REGIONS AFFECTED	PRECIP. TOTAL (MM)	PERCENT OF NORMAL	COMMENTS
West Central British Columbia	219 to 422	143 to 248	WET - 5 weeks
Northern Alberta	0 to 14	0 to 73	DRY - 18 to 26 weeks
Northern Newfoundland	0 to 17	0 to 23	DRY - 9 to 10 weeks
Washington and Southern British Columbia	0 to 71	0 to 46	DRY - 5 to 11 weeks
California and Oregon	8 to 33	17 to 34	DRY - 5 to 11 weeks
New England	11 to 38	15 to 45	DRY - 5 to 13 weeks
Oklahoma and Arkansas	75 to 113	220 to 242	Heavy precipitation second half of January
Texas	97 to 160	208 to 253	WET - 2 to 4 weeks
Southeastern United States	12 to 59	10 to 70	DRY - 4 to 9 weeks
East Central Mexico	1 to 8	7 to 19	DRY - 8 weeks
Samoa	511 to 583	130 to 196	Heavy precipitation first half of January
Cook Islands	21 to 99	10 to 26	DRY - 4 to 10 weeks
Northern Peru and Northwestern Brazil	229 to 565	199 to 263	WET - 2 to 4 weeks
West Central Brazil	399 to 441	190 to 277	WET - 4 weeks
Southeastern Brazil	248 to 366	159 to 240	Heavy precipitation first half of January
Western Uruguay and Northern Argentina	9 to 105	7 to 71	DRY - 4 to 33 weeks
Extreme Southern Argentina and Extreme Southern Chile	68 to 70	196 to 202	WET - 4 weeks
Iceland	70 to 178	104 to 194	WET - 2 to 4 weeks
Faroe Islands and Scotland	228 to 275	166 to 196	WET - 2 to 4 weeks
Norway	50 to 363	135 to 369	WET - 4 to 8 weeks
Finland	55 to 72	139 to 225	Heavy precipitation second half of January
Southern Scandinavia	4 to 18	11 to 45	DRY - 5 to 10 weeks
Central and Southern Europe and the Middle East	0 to 64	0 to 75	DRY - 5 to 18 weeks
Kenya, Malawi, and Northern Mozambique	118 to 667	124 to 397	WET - 4 to 5 weeks
Madagascar Island and Off-Shore Islands	601 to 801	227 to 275	WET - 4 to 6 weeks
Zambia and Botswana	260 to 443	197 to 207	WET - 2 to 4 weeks
Southern Mozambique	28 to 77	18 to 28	DRY - 5 weeks
Hokkaido, Japan	40 to 60	37 to 77	DRY - 4 to 5 weeks
Honshu, Japan and Korea	49 to 360	131 to 733	WET - 4 to 10 weeks
Eastern China	24 to 245	160 to 737	WET - 4 to 10 weeks
Extreme Southern Thailand	3 to 119	3 to 59	DRY - 10 weeks
Philippines	50 to 598	184 to 735	WET - 2 to 4 weeks
Kiribati Islands	2 to 27	1 to 9	DRY - 4 to 17 weeks
Eastern Australia	0 to 70	0 to 47	DRY - 5 to 10 weeks
New Caledonia	326 to 514	254 to 319	WET - 6 to 12 weeks
New Zealand	173 to 266	232 to 336	WET - 4 weeks

GLOBAL PRECIPITATION ANOMALIES

3 Months

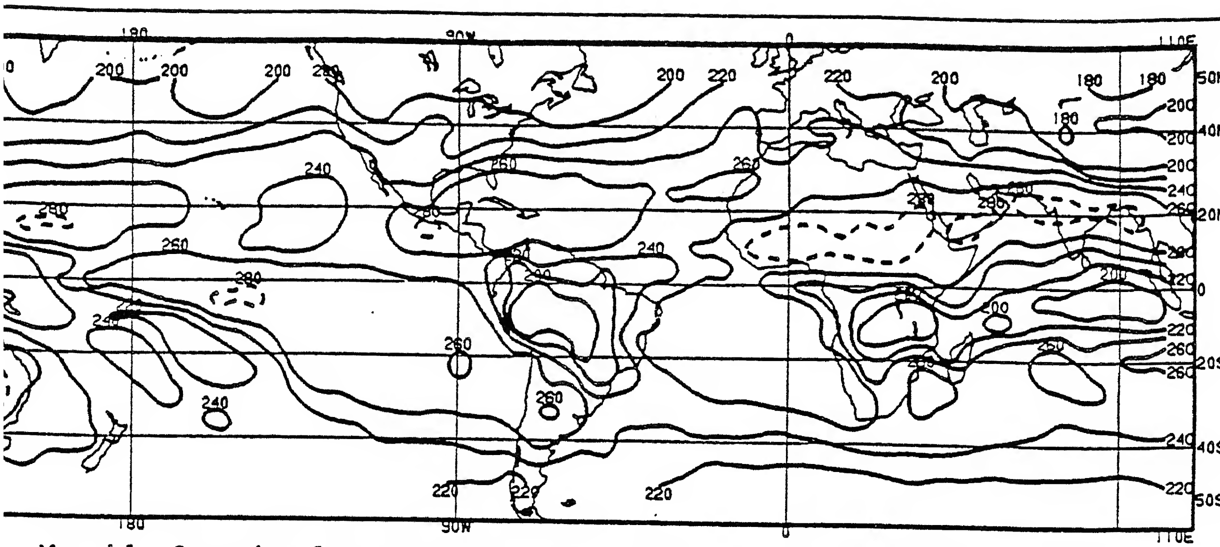


The anomalies on this chart are based on approximately 2500 observing stations for which at least 81 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the three month period is less than 50 mm, dry anomalies are not depicted.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, south-western Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

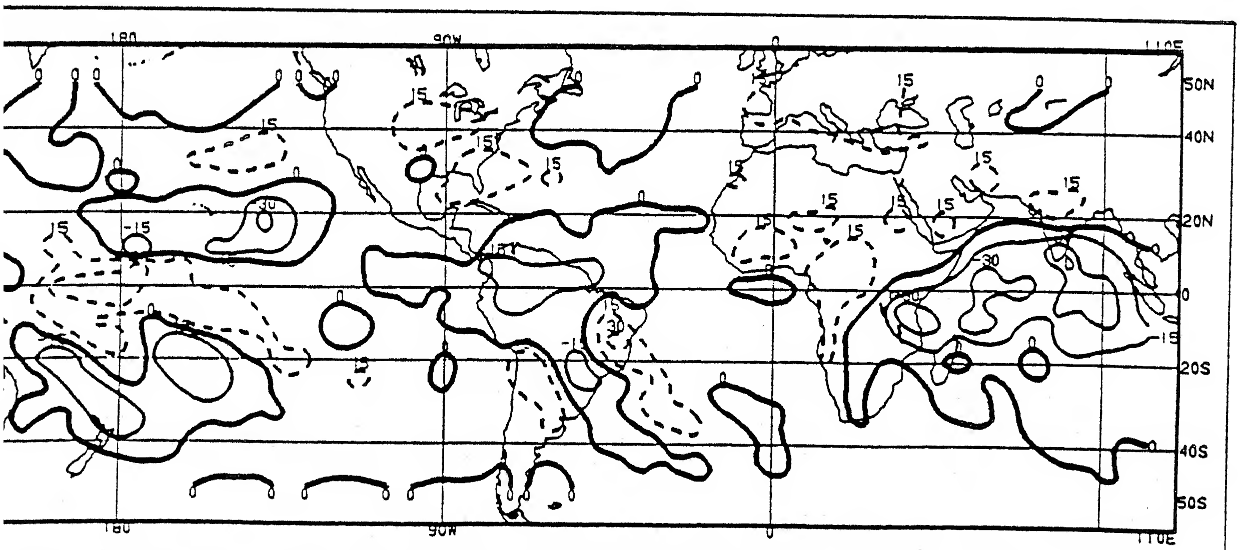
The chart shows general areas of three month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.



.n Monthly Outgoing Longwave Radiation (OLR) for January 1989.

monthly outgoing long wave radiation (OLR) as measured by the NOAA-9 AVHRR IR window channel (top). Data are accumulated and averaged over 2.5° areas to a 5° mercator grid for display. vals are 20 Wm^{-2}, and contours of 280 Wm^{-2} and above are dashed. In tropical areas (for our -20°S) that receive primarily convective rainfall, a mean OLR value of less than 220 Wm^{-2} is ith significant monthly precipitation, whereas a value greater than 260 Wm^{-2} normally tle or no precipitation. Care must be used in interpreting this chart at higher latitudes, the precipitation is non-convective, or in some tropical coastal or island locations, where tion is primarily orographically induced. The approximate relationship between mean OLR and amount does not necessarily hold in such locations.

monthly outgoing long wave radiation anomalies (bottom) are computed as departures from the e period mean (1978 missing). Contour intervals are 15 Wm^{-2}, while positive anomalies normal OLR, suggesting less than normal cloud cover and/or precipitation) are dashed and alies (less than normal OLR, suggesting greater than normal cloud cover and/or precipitation)



nthly Outgoing Longwave Radiation (OLR) Anomaly for January 1989.

SPECIAL CLIMATE SUMMARY

CLIMATE ANALYSIS CENTER, NMC

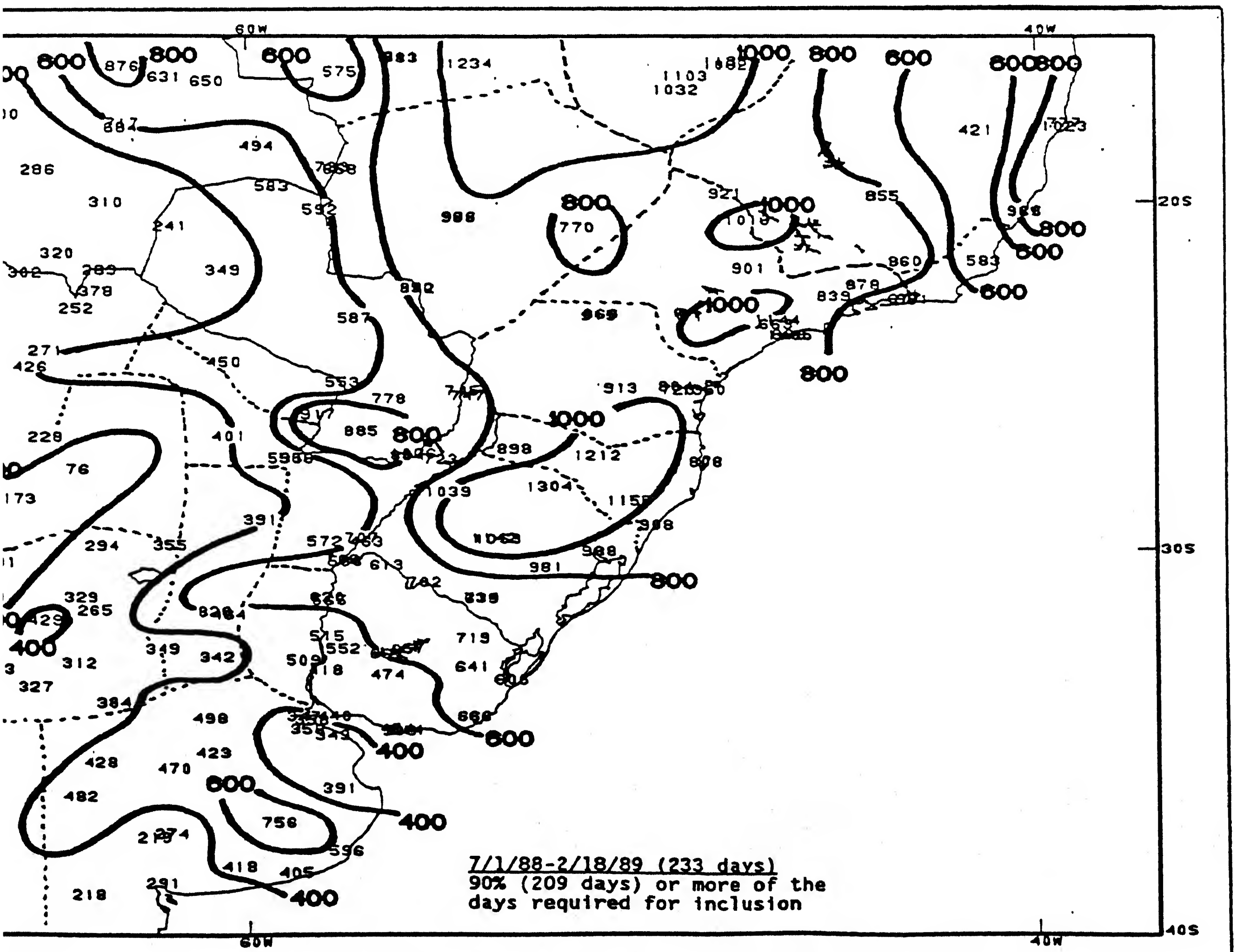
NATIONAL WEATHER SERVICE, NOAA

UPDATE ON DRYNESS IN NORTHERN ARGENTINA, PARAGUAY, URUGUAY, SOUTHERN BRAZIL, AND SOUTHEASTERN BOLIVIA

Since the last review on the abnormal dryness in south-central South erica (see WCB #88/43 dated Oct. 22, 1988, pages 9-12), conditions have ightly improved in southern Brazil, especially in the states of Mato Grosso Sul, Sao Paulo, Parana, Minas Gerais, and Santa Catarina, and in northern raguay and southeastern Bolivia. Rainfall totals exceeding 800 mm have curred throughout much of southern Brazil and extreme southeastern Paraguay, th lesser amounts in Uruguay and northern Argentina (see Figure 1).

Even with the increased precipitation during the rainy season (normally om October-April), however, accumulated amounts are still less than 75% of rmal since July 1, 1988 across a large portion of the region, while sections northern Argentina and Paraguay have measured less than half the normal ecipitation (see Figure 2). Additionally, much of Uruguay and eastern gentina, which had earlier recorded near normal rainfall during the first view, have now totaled only 50-75% of the normal precipitation since July 1, 38.

Precipitation deficits of 200-400 mm have accumulated throughout utheastern Bolivia, northern Argentina, Uruguay, eastern Paraguay, and in rts of Brazil's Minas Gerais state (see Figure 3). According to press ports, the subnormal rainfall has not only had adverse effects on riculture, but also on hydrological impacts such as river and reservoir vels used for irrigation, drinking supplies, and hydroelectrical production.



gure 1. Total precipitation (mm) during July 1, 1988-Feb. 18, 1989. opleths are drawn for every 200 mm up to 1000 mm.

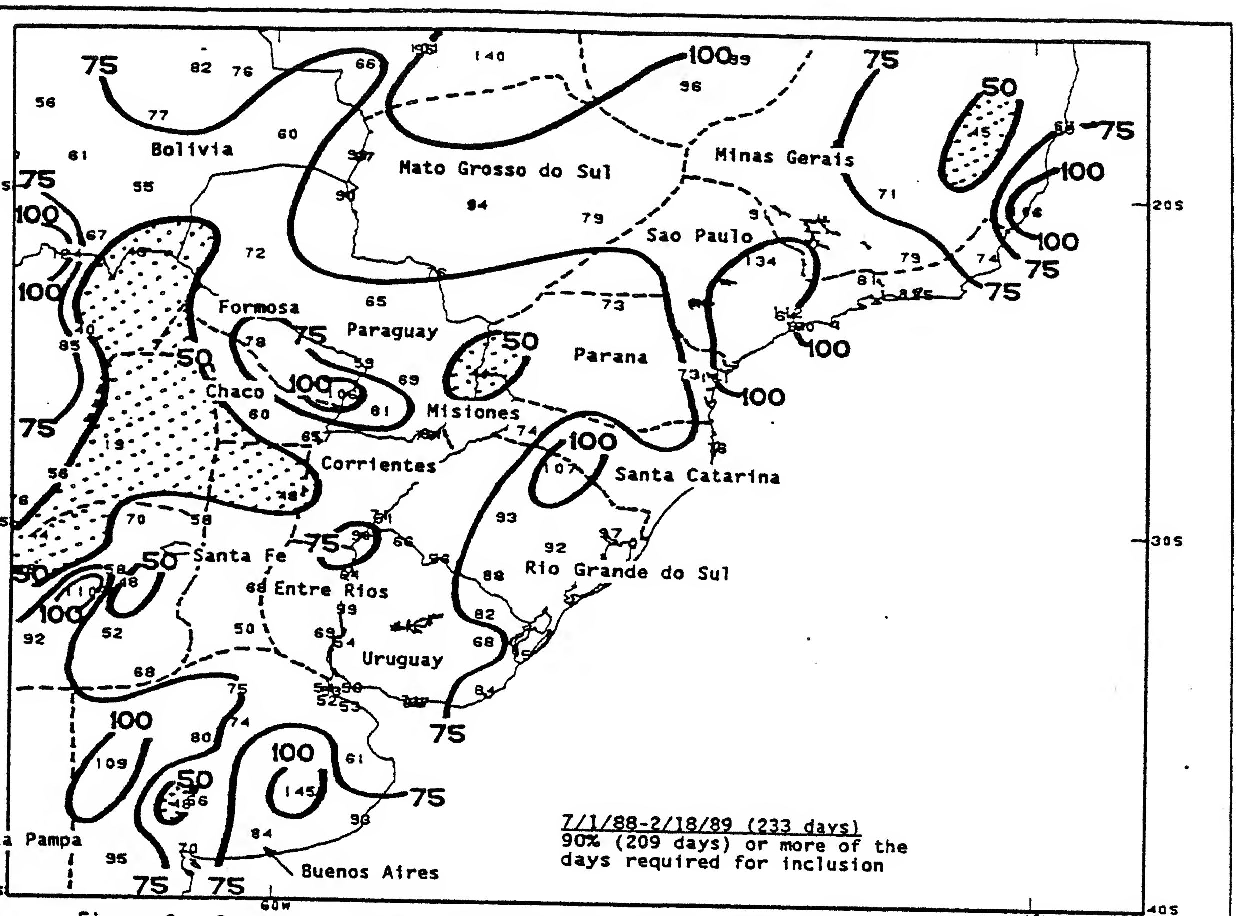
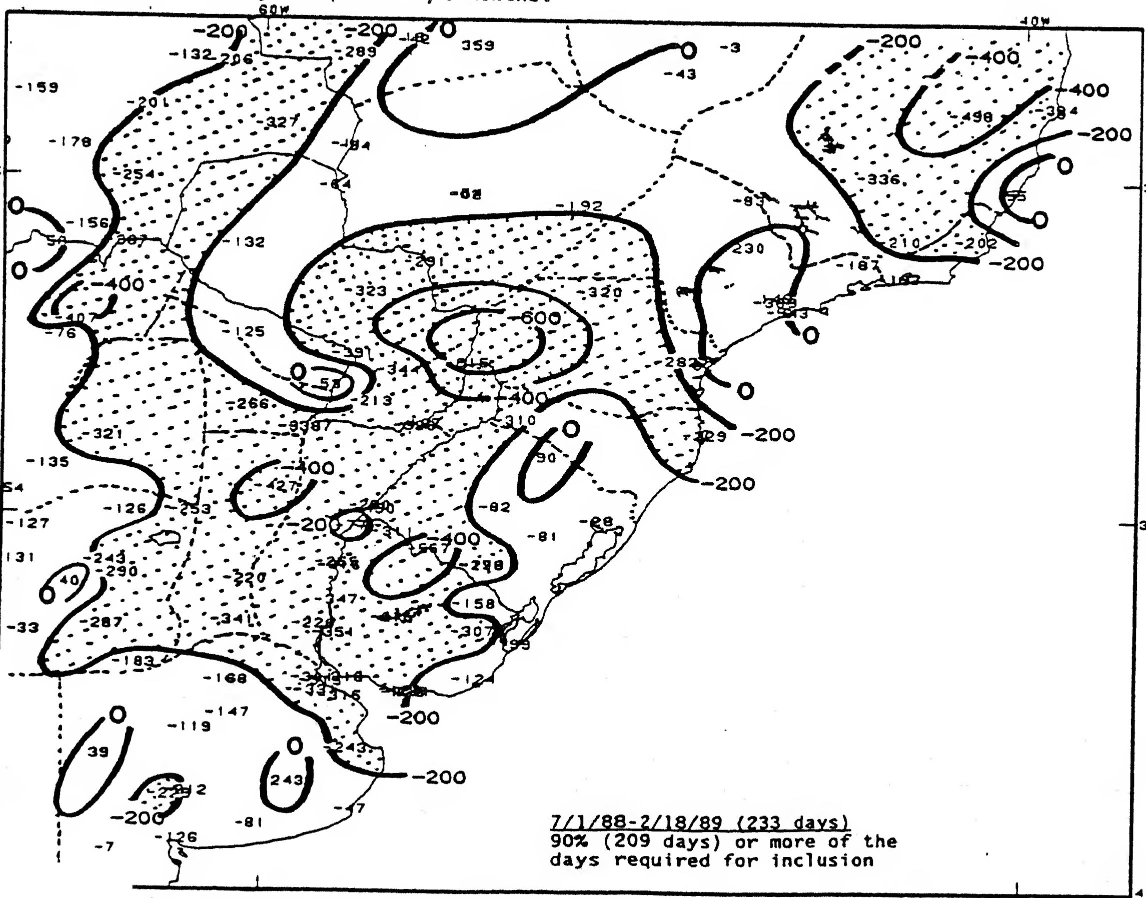


Figure 2. Percent of normal precipitation during July 1, 1988-Feb. 18, 1989. Isopleths are drawn only for 50, 75, and 100%, and shaded areas are less than 50%. Very few areas of south-central South America have received above normal rainfall during the past 7 1/2 months.



3. Departure from normal precipitation (mm) during July 1, 1988-Feb.
)89. Isopleths are drawn for every 200 mm, and shaded areas have
lated deficits of more than 200 mm.

SPECIAL CLIMATE SUMMARY

CLIMATE ANALYSIS CENTER, NMC
NATIONAL WEATHER SERVICE, NOAA

DRYNESS CONTINUES IN SOUTHERN EUROPE AND SPREADS NORTHWARD INTO CENTRAL AND NORTHERN EUROPE

Since December 1, 1988, much of southern Europe has experienced abnormally dry weather during the normally wet winter season (last reviewed in the WCB #89/4 dated Jan. 28, 1989, pages 13-14). In contrast, the first three weeks of December brought excess precipitation to most of north Europe, from northern France eastward into Poland. Since the last week of December, however, northern Europe has similarly recorded subnormal precipitation (see front cover).

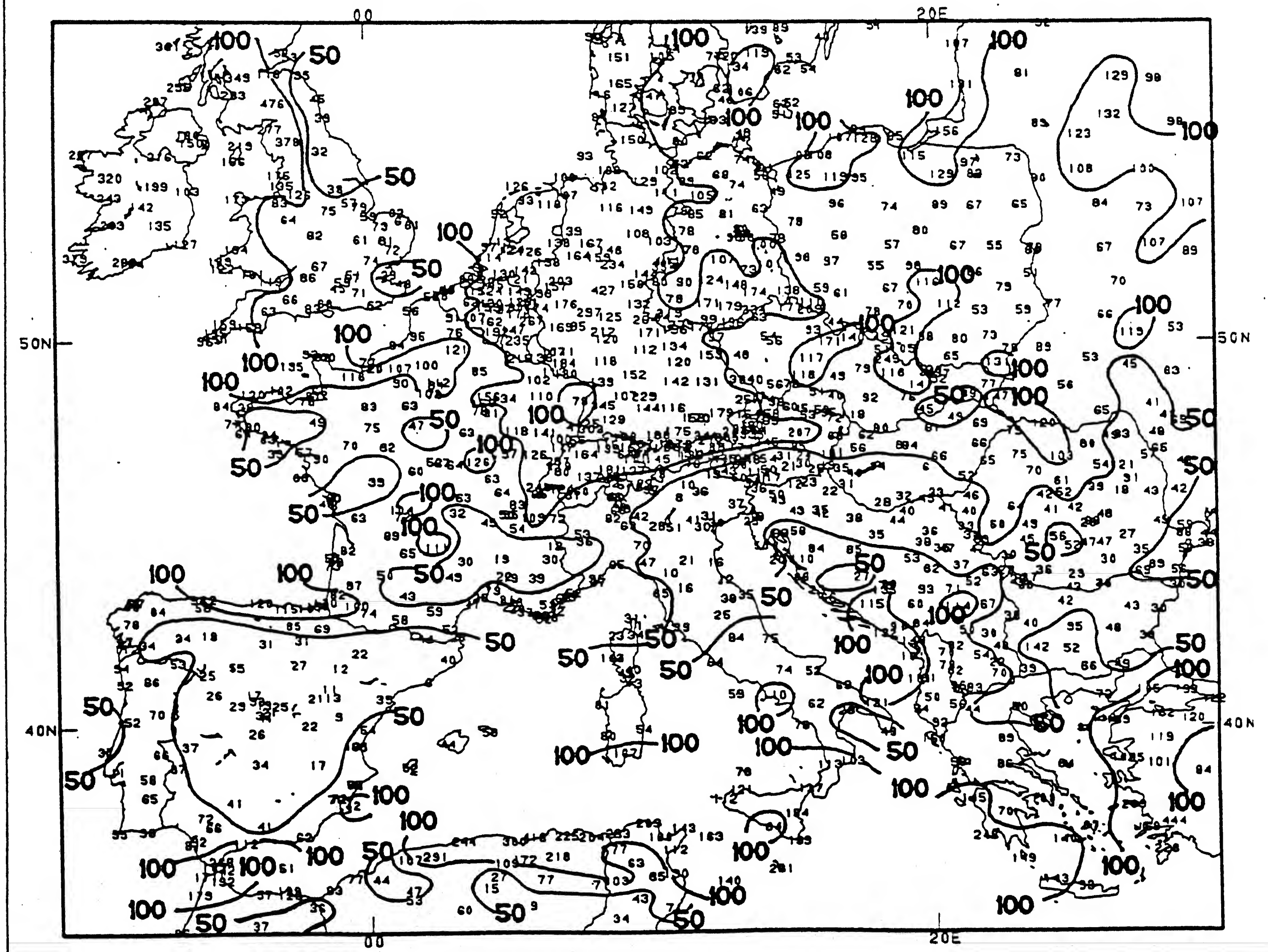
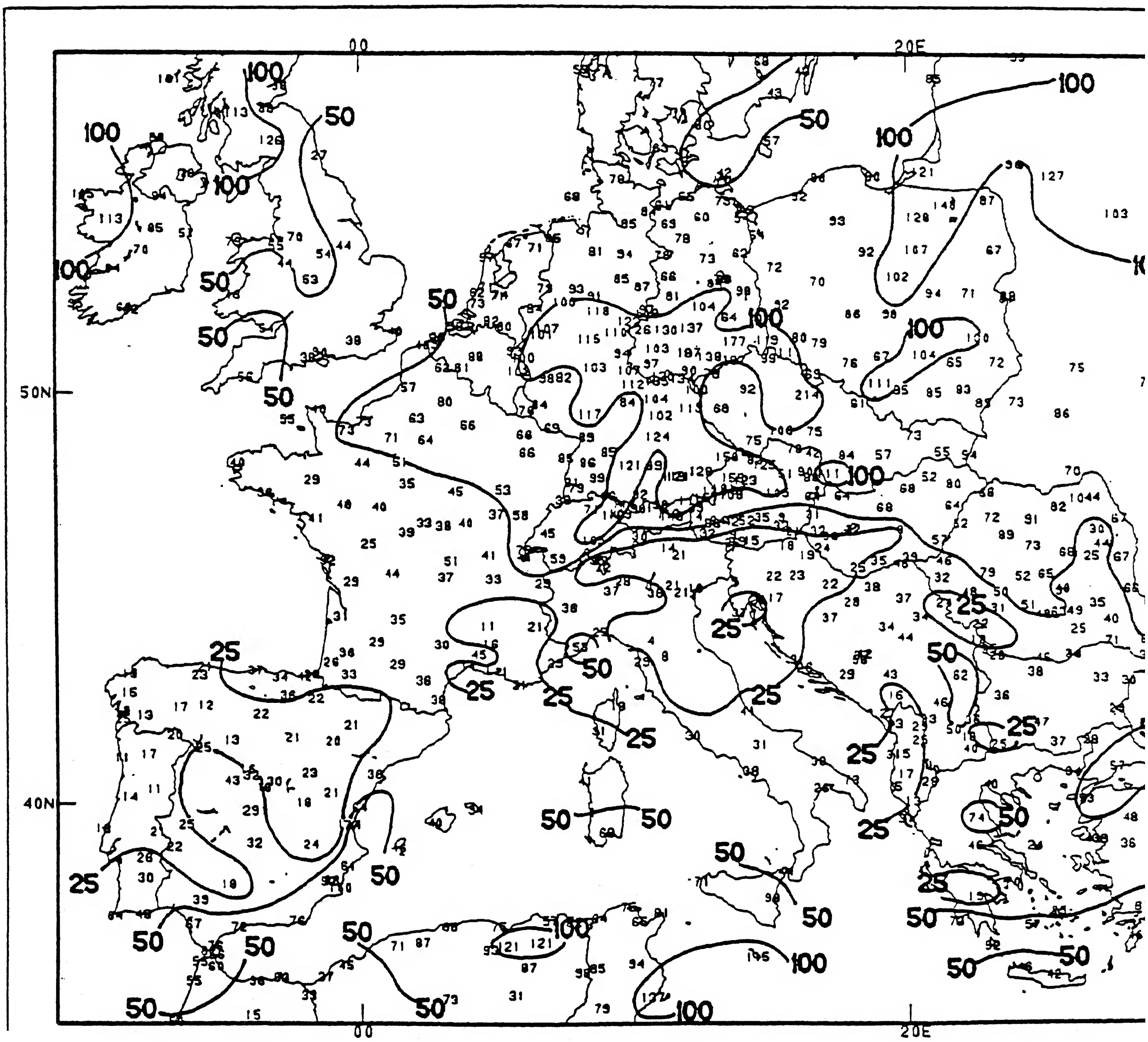


Figure 1. Total precipitation (mm) during Dec. 1, 1988-Feb. 18, 1989 (80 days). Isopleths are drawn only for 50 and 100 mm. 90% (72 days) or more of the days were required for inclusion.

During the past 2 1/2 months, precipitation amounts have been rather meager across southern Europe as much of Spain, southern France, northern Italy, northern Yugoslavia, and parts of Bulgaria, Romania, and Hungary have measured less than 50 mm (see Figure 1). These totals represent less than 25% of the normal precipitation (see Figure 2). Only portions of Germany, the Alps, England, and Poland have reported near to above normal precipitation, with most of this occurring during the first three weeks of December. Deficits of 25-100 mm cover most of northern Europe, while deficiencies between 100 and 400 mm prevail across the southern third of the continent (see Figure 3).



e 2. Percent of normal precipitation during Dec. 1, 1988-Feb. 18, 1989 (8
. Isopleths are drawn only for 25, 50, and 100%. 90% (72 days) or more o
days were required for inclusion.

Even more striking is the lack of precipitation throughout all of Europe during the past 8 weeks (since Dec. 25). Most of the continent has received less than 50 mm, and some stations in northern Italy, southern Austria, northwestern Yugoslavia, and eastern Greece have not recorded any measurable precipitation (see Figure 4). As a result, almost all of Europe with the exception of northern Scandinavia and western England has observed less than half the normal precipitation since Dec. 25, 1988 (see front cover).

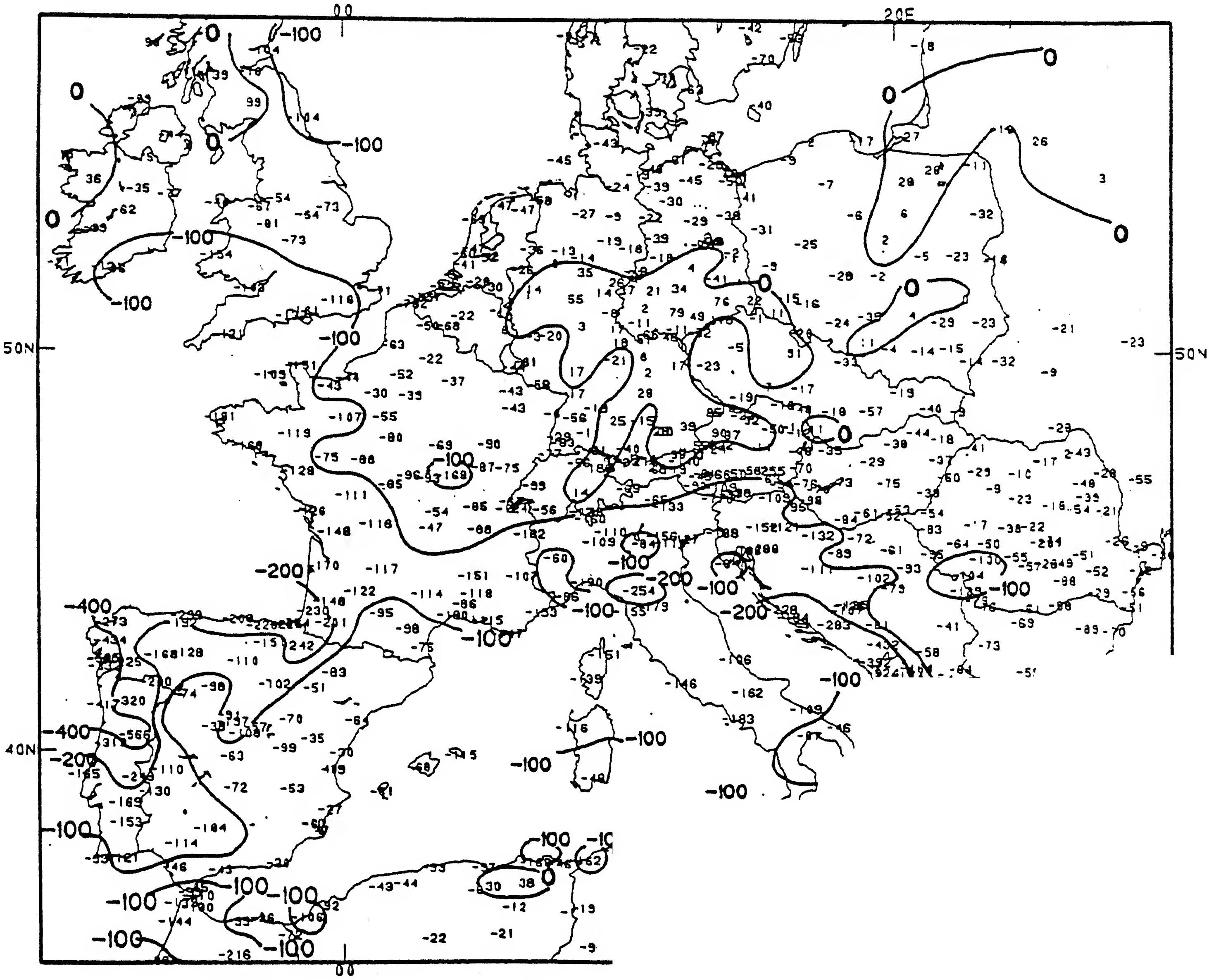


Figure 3. Departure from normal precipi
18, 1989. Isopleths are drawn only for
days) or more of the days were required f

The lack of significant precipitation (and storm systems) can be attributed to the presence of a strong ridge of high pressure anchored over central Europe since early January. In northern Europe, the ridge has steered most Atlantic storm systems northward into northern Scandinavia, while farther south, very few Mediterranean storms have developed.

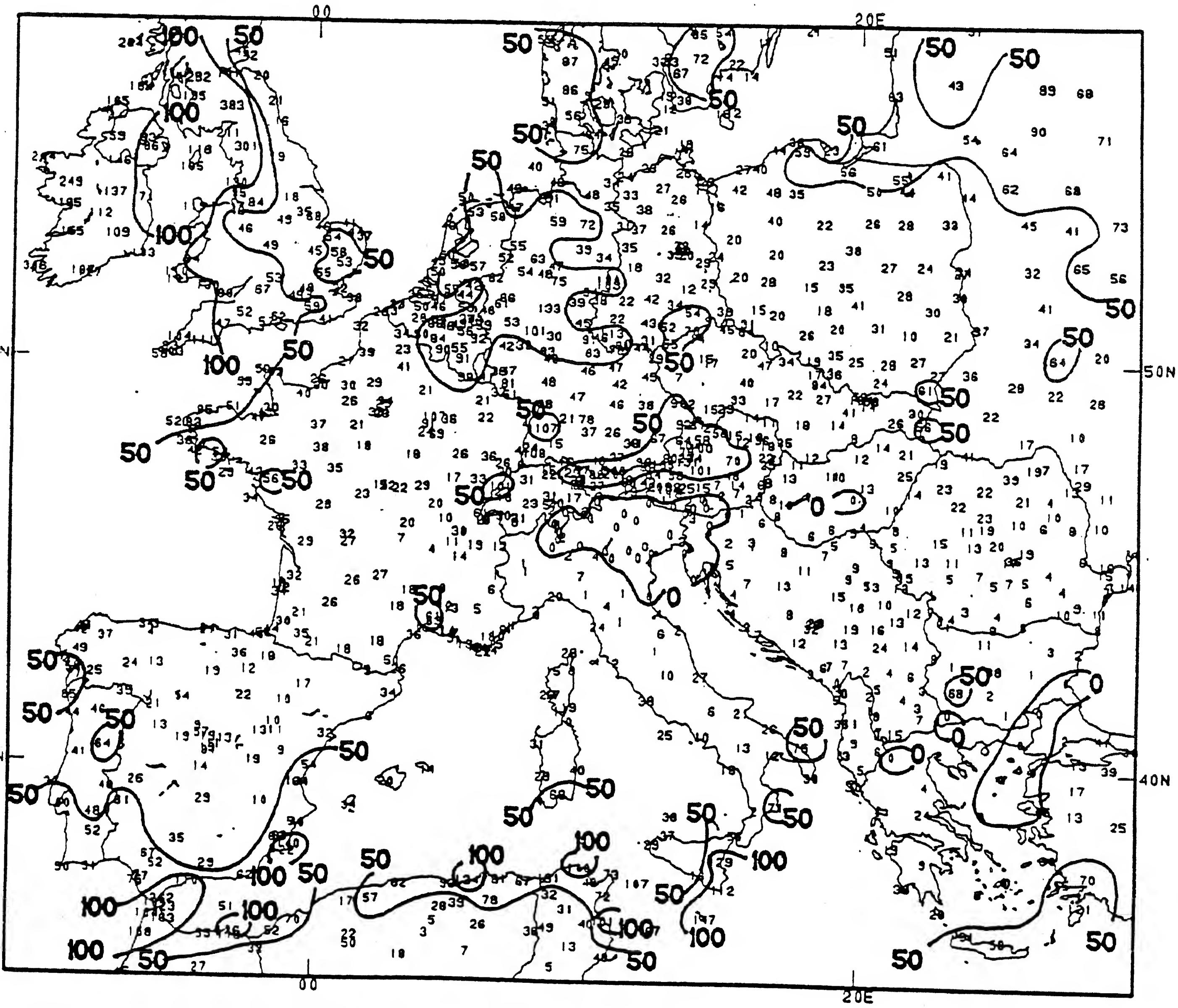


Figure 4. Total precipitation (mm) during Dec. 25, 1988-Feb. 18, 1989 (56 days). Isopleths were drawn only for 0, 50, and 100 mm. 90% (50 days) or more of the days were required for inclusion.